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ILLINOIS MEDICAL JOURNAL

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VOL. XXIX CHICAGO, ILL., MAY, 1916 NO. 5

Original Articles

THE CRIMINAL BOY.* SOME OBSERVATIONS BASED UPON 112 CASES.

WM. O. KROHN, PH.D., M.D.
CHICAGO.

Let my first words in this brief paper be words of protest against a somewhat extreme modern tendency to excuse the perpetrator of any crime, provided he is of relatively immature years. There are organized efforts on the part of certain groups of well-motived, eminently respectable people, not only to themselves excuse crime of any sort, provided the perpetrator is under 25 years of age, but also organized efforts to induce everyone else, especially those who administer the law, to take this same view. They would seek to have us regard *youth* itself as a psychopathic disorder, especially as applied to the male sex, though for some reason they are not equally generous toward the girl criminal who may have committed a less flagrant offense.

Furthermore, the word "boy" in the criminal courts has come to be a term of much wider comprehension and much greater inclusion than is given to it anywhere else. It is almost a travesty to observe the 18-year-old male as an honest bread-winner, almost a man of affairs in the every-day walks of life, in business, in society, while his 25 or 26-year-old uncle, who steals an automobile or shoots up the town and commits robbery with a gun, and possibly murder, sniffles and cringes his way into the halls of justice, begging to be considered as "only a boy," and the judge who presides over the court is besought by organized groups of people to consider his crime as only a boyish prank and that the perpetrator thereof should be given "another chance." And if for good and sufficient reasons the presiding judge fails to be moved by any such maudlin sentimentality, these same excusing agencies seek to have this poor misguided 25-year-old boy examined and if possible made out a "moron" and therefore unaccountable and irresponsible for his criminal act. It seems ridiculous to call the high school boy at the age of fifteen "Mister," regarding him to all intents and purposes as a man, and then six, eight or ten years later when he is arrested for crime, call him a "boy." There may be and probably are many good reasons for a special branch court called the "Boys' Court," but it should never be forgotten that to justify its existence it must be more than a "Court of Excuses."

My purpose in presenting the results of my study and observation of 112 boys charged with crime, is to show that on the whole, the mental life and development of the criminal boy has but few unusual features, that his mental powers unfold in about the same way as do those of the boy who does not clash with the laws of society or get into trouble calling for court adjudication.

These 112 boys were chiefly inmates of the county jail of Cook County. Eight were inmates of county jails in counties other than Cook; four were in the Pontiac Reformatory; three in the House of Correction: For statistical purposes I am compelled to use the word "boy" with the same poetic license as previously alluded to, i.e., my group includes males ranging in age from 16 to 25 years.

Let me briefly summarize the results of my investigation:

1. *Tests of the Senses*—The tests of vision of these boys incarcerated in our criminal institutions reveal the fact that 9.5 per cent. have defective vision, mostly a minor astigmatism in character. This is not such a remarkable deficiency to the writer's mind when he recalls that as a result of investigations upon the children in the public schools of Illinois directed by him in the five years, 1892-1897 inclusive, it was found that 11 per cent. of all the school children of Illinois have defective vision—and further-

*Read before the Chicago Medical Society, April 19, 1916.

more these defects of vision increase in frequency as we pass from the lower to the higher grades in the public schools. If the average defect of vision in children of school age from 6 to 16 is 11 per cent., then the 9.5 per cent. of visual defects in boys in the jails, ranging from 16 to 25 years of age, is not a great variance from the average and is really in favor of the jail boy.

Twenty of these 112 boys, or 18 per cent., had defective hearing in one ear or both, chiefly as a result of adenoids or catarrhal diseases such as are the sequellæ of scarlet fever. But at the same time please remind yourselves that 19 per cent. of all the children in the public schools of Illinois have defective hearing in one ear or both.

The sense for the perception of the finer discriminations of touch is somewhat blunter in the boys confined in jail than in the boys outside; also the perversions of taste are more marked. It was not an unusual occurrence when applying vinegar to the tongue tip of the blindfolded boy in jail to have him state that it tasted like whiskey instead of the normal answer "sour." Yet by far the larger majority of these 112 boys correctly discriminated between sweet, sour, salt and bitter. And in passing, may I state that in nearly every case where the sense of taste was perverted an examination of the boy's mouth disclosed that the tongue and the mucous linings of the mouth were covered with a foul, mossy, yellow brown coating as a results of cirgarette indulgence.

2. *Tests of Memory.*—I find almost without exception that these boys confined in institutions have better visual than auditory memories. They remember the things they see better than the things they hear. But they also remember the concrete better than they do the abstract. For example, if, after the manner of the usual laboratory test, I place a series of figures such as 4, 9, 6, 3, 7, 5, 1, 8 on the observation shutter for 10 seconds and then cover up these figures the boy being tested may only recall four of the eight figures. But if I expose for the same period a series of playing cards, e. g., the four of diamonds, the nine of hearts, the six of clubs, the trey of spades, etc., throughout the series of eight cards, he will correctly remember at least six or seven of the eight and in the exact order presented. Within the last two years some friends of mine in examining boy prisoners in the county jail reported that certain boys could not grasp or comprehend number combinations aggregating greater than seven. That is, they could add 4 and 2, 3 and 4, etc., but could not grasp a sum greater than seven. Yet these same boys when engaged in playing the game of cards called "Rhum" would add quickly and correctly such numbers as 8, 5 and 7, in counting the penalty cards remaining in hand. My point is that such a boy's mental development must not be rated or established by his inability to add or count beyond seven when under the incentive of actual games of contest he is able to comprehend number relations many times greater.

In this same connection we should also recall that it is not only the jail boy who has better eye memory than he has ear memory. The child study work in schools, tests of 200,000 school children in these United States, reveals that in our public schools the normal boy has this same memory characteristic. The normal boy has a better memory for the things seen than for things heard. He is eye-minded rather than ear-minded. On the other hand, girls have better ear memories than boys, chiefly because the girl attends more closely to things heard while the boy attends more closely to the things he *sees*.

3. *Powers of Judgment and Comparison.*—Nearly every one of the 112 boys charged with crime possessed to the full degree the power of making judgments as to values. This was evidenced in many ways, notably in their exercise of the trading instinct. Their trades and dickers among themselves and with other inmates revealed keen and accurate judgment of values of articles possessed and articles sought in exchange; indeed, the majority of them barter with the keen business sense of embryonic merchant princes. Their judgment of danger involved in carrying out certain predatory criminal acts also evinces the high degree to which the faculty of judgment is developed. To illustrate: The average boy criminal has been led to believe on mere traditional basis that it is an offense against the United States government to break open a car seal. Therefore, in his depredation, unless he is old in crime, he avoids breaking car seals, but will commit all sorts of infractions against city ordinances and state laws. Why? For the reason that to him the United States courts are great impersonal

agencies punishing all regardless of excuses, while the state and city courts are always capable of being thwarted in meting out punishment, and since such acts are fraught with less danger the criminal boy will break the lock of a house or cigar store, or hold up a drug store or saloon, or commit robbery with a gun upon a pedestrian, or murder the agent of an elevated station, rather than break open a car seal, basing his judgment as to such conduct upon his own experience and that of others.

4. *As to the Imagination.*—In passing rapidly I can only say that my studies show that these self-same criminal boys are deficient to a degree in constructive imagination. It seems somewhat difficult for them to picture the joys and rewards of methods of living other than those that have brought trouble upon them. They do possess, however, more than ordinary ability in reproductive imagination, which in a degree offsets the deficiency in constructive ability. They copy better than they initiate.

And last, *As to Reasoning.*—These 112 boys as a group show no material deficiencies in inductive reasoning. They are, however, below par in reasoning deductively, i. e., from premise to conclusion.

This rapid review of my investigations may suffice to reveal the basis of my conclusion that the average boy confined in jail is not grieviously defective in mental power or mental development. His being in jail is the "end-result" of *misdirection* of mental energy and the *misapplication* of mental ability. In nearly everyone of the 112 cases the predicament of the boy was due to the failure to bring him face to face with the consequences of his act at the commission of his first offense earlier in his career. The first infraction, a minor one, was excused; he soon commits another and more serious one, and so on until finally his offense is so bald or some judge awakens to the seriousness of the situation and the boy is confined in jail. To illustrate: a school boy was found to be stealing from other pupils, from his teachers and from the board of education. Intercession was made, no punishment meted by parent or principal; he was "excused" and the offense glossed over with polite phraseology. The enormity of the crime of stealing was never forcefully presented to his mind. In fact, he was made to feel that he did not *steal* but only "took" things and did not really men to do that. Later he was in the Boys' Court for stealing from merchants in the neighborhood; has developed the stealing habit; is a *thief*, and still excuses galore were offered in the hope of his escaping punishment. My contention is this: *Always excusing for crime makes a pathological personality out of a boy who at the outset of his criminal career was normal in every mental attribute and would have remained normal but for these excusing agencies.*

May I invite your brief consideration to another phase of this study. There are occasionally criminal boys who are mentally defective. But these defects are best revealed by intensive individual study of the particular boy in question and the circumstances surrounding the commission of the particular crime in question rather than by any system of laboratory routine. And do not conclude when I say this that I am speaking without laboratory experience. If the personal allusion will be pardoned, the writer begs to state that he installed the first psychological laboratory in this state at the State University of Illinois in 1892; that during the five years he was head of this department at your state university he conducted and directed tests upon the mental faculties of thousands of normal children in the public schools; that in 1897 he established at Kankakee the first laboratory of psychology in an insane hospital in this country. This was made possible through the hearty cooperation of one of your members, Dr. Wm. G. Stearns, then superintendent at Kankakee. Later, in cooperation with the late Dr. W. S. Christopher, he also assisted materially in making the Child Study Department a vital part of Chicago's public school system.

Based upon this experience and upon the results of the last nine years of study of confined criminals or those charged with crime, I have reached the conclusion that the routine laboratory methods have but limited value in disclosing the mental development and mental efficiency of the criminal boy. May I illustrate? A boy within a few months of graduation from one of the Chicago high schools was arrested for stealing railroad property and selling the same. He was convicted. Later he was paroled, and still later was rearrested for violation of his parole. He was 16 years old. In the high school he had

proved intellectual power quite above the average of his age and race. When rearrested intercession was made for him and a laboratory examination was ordered by the presiding judge. The laboratory report showed his mental age to be less than eight years, and that his acts should be interpreted as those of an eight year old boy; and this in face of the fact that the boy had passed through all the grades of the Chicago public schools with credit and in school achievement was above the average of his age. For my part I regard the combined conclusions of the score of teachers who had been in daily touch with this boy in the school rooms, for more than ten years, as a better criterion upon which to base one's judgment of his mental status than in the arbitrary dictum of the most skilled laboratory man who put him through an hour's examination by the Binet-Simon tests. These tests have value but reveal only a very small segment of the entire circle of the boy's activities. We should at least not make claims as to the infallibility and completeness of these and similar laboratory tests that are more extravagant than the claims of those who originated these tests.

There is also a tendency to arbitrarily interpret the findings evoked by the Binet-Simon and similar tests. To illustrate: One of the tests of the higher mental processes of the fifteen-year-old which I quote is this: in the course of examination the statement is made to the boy that "my neighbor has received some singular visitors; he receives one after another, a doctor, a lawyer, and a priest. What is going on at my neighbor's?" The correct response, according to the books, is "He is very ill; some one is very ill there—dead," and this response is the necessary one if the boy examined is to make the fifteen-year-old mental grade. A boy recently convicted of murder, when asked this selfsame question, replied to the writer that the doctor, lawyer and priest were all three there to get money. My contention is that in so answering this stereotyped question he exercised his more complicated mental processes as fully and as well as if he had given the answer "illness" or "death," as designated by the book as the only correct answer.

Some of the boys who are the beneficiaries of these well motived efforts themselves heap ridicule upon the methods of those seeking to assist them in escaping punishment. Two boys recently in an East Sixty-third street billiard hall or pool room were conversing when a third associate entered. He had just been released from the Boys' Court. He was asked "What did they do to you, Red?" "Nothing," came the answer. "Last time they told me I was a moron but now I am a high grade imbecile." A little later he successfully negotiated a difficult shot on the pool table and one of his associates in complimenting him laughingly remarked, "If a high grade imbecile can make a crack shot like that I am going down to court and get some of the same dope."

Two years ago I examined in the Cook county jail a boy convicted of murder. The evidence was conclusive. His lawyer, as a last resort, sought an examination. He was found sane. On leaving him he suggested, "Well, Doctor, if you can't make me out crazy, can you not at least make a *'maron'* out of me?" He had heard the word "moron" and knew of it as a term to get out of jail with, but had not yet learned its correct pronunciation. I make this explanation that no one will think he was using the term as applied to the loyal sons of the University of Chicago.

No one will grant more readily than I that the Binet-Simon and other tests have a proper and important use, but *within limits*. In addition, we must use every recourse possible to gain knowledge of the particular boy as related to the particular crime with which he is charged.

As physicians, as men and women of affairs, we must assist in making plain to the boy that the laws of society are as inexorable as the laws of health; that the violation of the laws of the state cannot help but bring disaster to the guilty individual. That we must impress upon the mind of the criminal boy, the boy already confined, charged with crime, that his life in its various relations to society must be readjusted according to law. As physicians going in and out of the homes of our citizens we can do large things in leading the boy to see from earliest childhood that wholesome civil freedom as well as comfortable physical freedom comes alone to those who travel a course in harmony with law rather than one that runs counter to it. That violation brings one in contact with the rough edges of stern law; that this contact not only wounds and pains, but invites disaster. As physicians, scientifically trained, but broad-minded, deep chested,

large hearted, with a passion for service of our city, state and nation, in behalf of the boys of today who become the men of tomorrow, we can and should become leaders of thought and action in creating in the boys and in their parents a wholesome respect for law. With patience, with devotion to calling, with breadth of vision that perceives the final goal in the evolution of the state, we can, as physicians, accomplish almost as much in curing the pathological conditions of society that makes criminal boys as we can in curing the pathological conditions that obtain in the individual patient who presents himself at hospital or office. We can and should make two blades of wholesome regard for law grow where but one grew before. In social medicine as well as individual physical treatment, prevention is better than cure. By seeking the enforcement of civil and criminal law, and assisting in creating a respect for law, we are making for, rather than against, the mental health of the otherwise criminal boy.

THE ULTRAVIOLET RAYS IN DERMATOLOGY.*

E. A. FISCHKIN, M.D.

Professor and Head of the Department of Dermatology and Syphilology, Chicago College of Medicine and Surgery.

CHICAGO, ILL.

From the time that Wollaston discovered the existence and action of the invisible part of the spectrum, little was heard of these invisible or "ultra"-violet rays until Finsen pointed out their importance for therapeutic purposes.

He first recognized the injurious action of the short waves light in variola and instituted his method of treatment of this disease (red light treatment) by exclusion of the short waves or chemical rays. It was a treatment of a negative character. But soon a light treatment of a positive character forced itself upon his attention. The bactericidal action of the chemical rays became known and their inflammatory reaction upon the skin was, mainly by himself, observed and studied. It was therefore tempting to try the ultra-violet rays on lupus vulgaris, which is both a superficial and bacterial disease. Finsen believed to have found that the blue rays were the ones which produce inflammatory reaction and the rays to the right of blue in the spectrum (violet and ultra-violet) produce bactericidal action. He found the most appropriate mixture of these rays in the carbon arc, which he used for his lamp with compression and anemization of the skin, to eliminate the absorbing red of the blood. The Finsen method of treatment became established and the Finsen lamp made its triumphant tour through the world. The lamp has, however, shown many shortcomings, quite troublesome to each of us who is operating it. It is too cumbersome an apparatus to handle, too expensive in operation, the radiations can be focused only on small areas and require long time. Finally, it was proven that the ultra-violet rays alone are the ones which produce the therapeutic action (inflammatory as well as bactericidal) and that the amount of energy, radiated by the therapeutically useful rays is only a small percentage of the waste of total radiation of the electric arc (Fig. 1). The need was therefore felt of a richer and more convenient source of ultra-violet rays. In 1896 Leo Arons discovered the mercury vapor lamp, the construction of which was varied and improved by Lummer & Straubel, Fabry & Perrot and finally by Cooper-Hewitt. The mercury arc was then known to be relatively rich in ultra-violet rays,

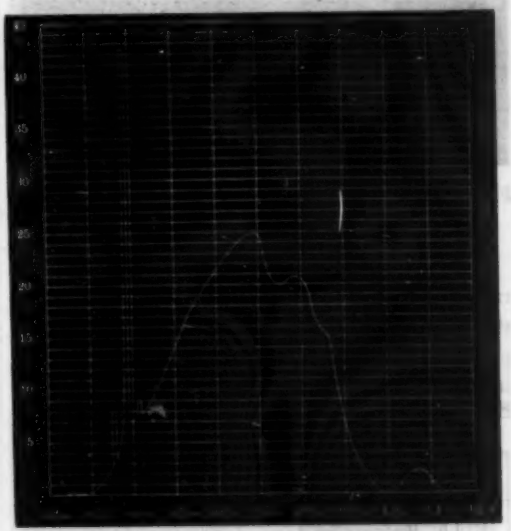

Fig. 1. Radiation of the Finsen-Reyn Lamp. Shows That of the Total Millicalories Consumed Only a Small Part Produce Short Wave Rays (Shorter Than O, 4 M).

*Read at the meeting of the North Shore Branch of the Chicago Medical Society, April 6, 1916.

the superiority of the mercury vapor spectrum being shown in Fig. 2, which is drawn to the same scale. In 1904, when Haereus in Hanau had succeeded in producing vessels of fused quartz, whose transparency for short wave length

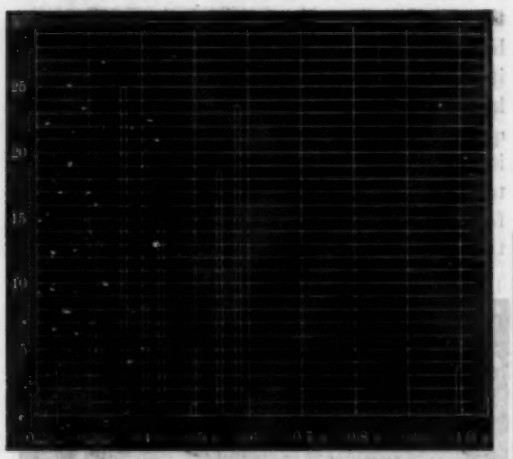

Fig. 2. Radiation of the Mercury Vapor Quartz Lamp (Drawn to the Same Scale as Fig. 1). Shows the Production of a Larger Amount of Invisible Rays (Shorter Than O, 4 M).

rays was then known, Kuech & Retchinsky substituted this material for the glass tube, employed previously, merely with the intention of increasing the transparency of the container. But in using lamps made of quartz and varying

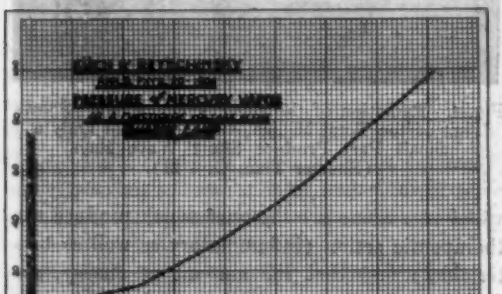

Fig. 3. Shows the Pressure of the Mercury Vapor in the Tube Increasing With the Incerase of Voltage.

conditions, they made an important discovery. In the Cooper-Hewitt lamp the working pressure of the mercury vapor is small, 1-2 cm. or less, and the mean temperature of the light emitting mercury vapor column about 400 Celsius, while the output in ultra-violet rays is comparatively small, even if the tube is made of quartz; the same lamp will show a larger efficiency and emit a much larger percentage of its radiated energy in the form of ultra-violet rays, if the working pressure and the temperature of the mercury vapor column are raised by "overloading" the lamp, thus increasing the drop of potential per cm. of tube length (Figs. 3 and 4). In the original Cooper-Hewitt glass mercury vapor lamp this drop equals about 1 volt per cm. tube length, which is increased in the quartz lamp to 30 volts per cm. tube length, the working pres-

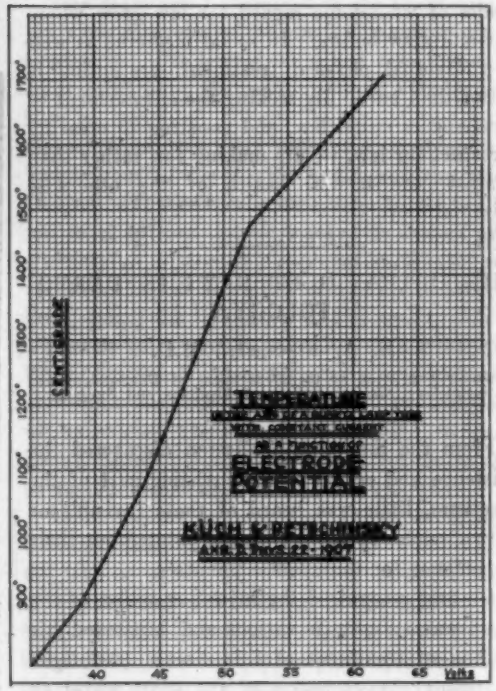

Fig. 4. Shows the Enormous Increase of Temperature With the Increase of Voltage.

sure of the mercury increases from the original 1-2 cm. to 150 cm., while the temperature rises from 400 C. to several 1,000 C., as shown in the diagram. When the load is gradually increased there is at first a pronounced decrease in efficiency, observed up to a certain ("critical") point, which marks the transformation of a low-pressure lamp into a high-pressure lamp (Fig. 5). The increased output in ultra-violet rays appears somewhat later than the increase of efficiency, is at first proportional, but still later

on increases faster than the efficiency of the device, the part of the short wave length spectrum increasing faster than that of the larger waves (Figs. 6 and 7).

That this phenomenon is a direct consequence of the increased temperature and pressure of the mercury vapor was demonstrated by Buisson and Fabry (Comptes Rend., 152, 1911), and Henry (Ibid, 153, 1911) who investigated the output of ultra-violet rays as a function of the cooling conditions (Fig. 8); submerging of the lamp in water decreases the output of ultra-violet rays (and also the efficiency of the lamp) by decreasing the temperature and the pressure of the mercury vapor.

In conjunction with these tests the fact might be pointed out that water absorbs ultra-violet

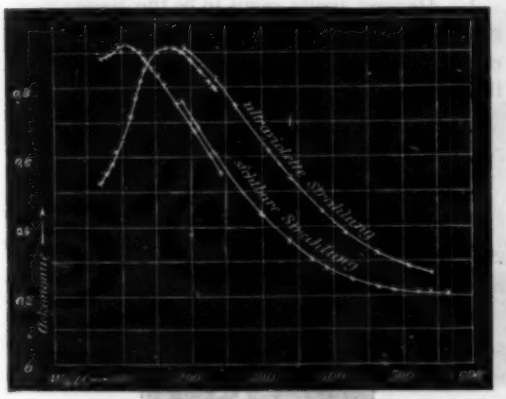

Fig. 5. Shows the Relative Watt Consumption (Economy) of the Visible and Invisible Rays Turning at the "Critical" Point.

rays about as well as quartz; the absorption of various materials has been studied by Pfluger and others at various times. In the medical quartz lamp the water does not touch the quartz tube, as an extra quartz cover prevents direct contact, but the absorption of the water has, of course, the identical effect as if the quartz tube had walls of the same thickness as the space occupied by the water, while the cooling influence of the water effects a corresponding decrease in temperature, pressure of the mercury vapor and a proportional lowering of the output of ultra-violet rays. As unpurified water is continuously used for cooling purposes, this absorption is still increased. It has also been observed by Berthelot that a carbon deposit forms on the inner walls of the quartz tube and it is safe to assume that the intense action of the cooling medium increases this disadvantage.

The conclusion seems justified that air-cooled lamps are preferable to water-cooled lamps for

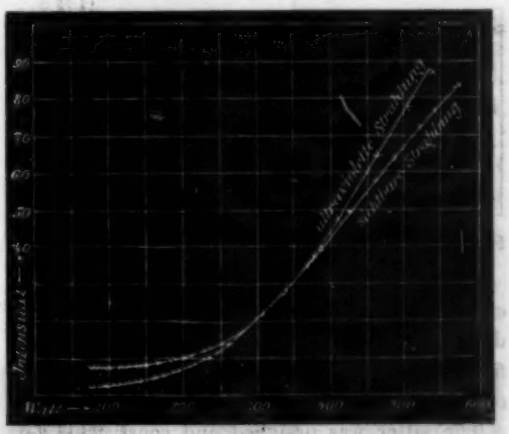

Fig. 6. Shows the Relative Intensities of the Ultra-violet and Visible Radiation as a Function of the Load in Watts.

therapeutic purposes, provided that they are large enough and are operated at a suitable voltage to insure high commercial efficiency, which is equivalent to a larger output of ultra-violet rays. It has furthermore the advantage of a

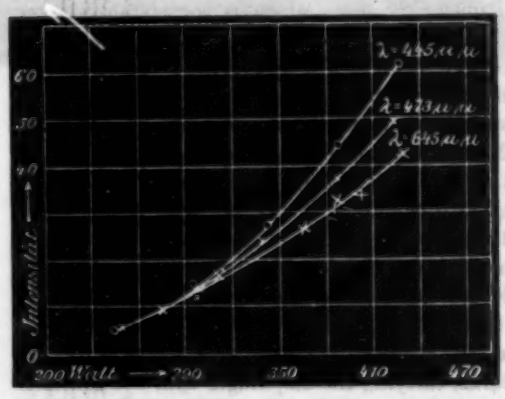

Fig. 7. Shows the Intensities of 3-Wave Lengths as a Function of the Load in Watts, the Shorter Wave Rays Increasing Faster.

wider conus of rays and of possibility of radiating larger areas, at an appropriate distance of the whole body. It is inferior, however, to the Kromayer lamp in some regards: in not having the possibility of bringing the tube near to the

skin, in not permitting filtration of rays through a blue quartz filter and in excluding the deeper reaction by not having the device of compression.

Recognizing the different indications for gen-

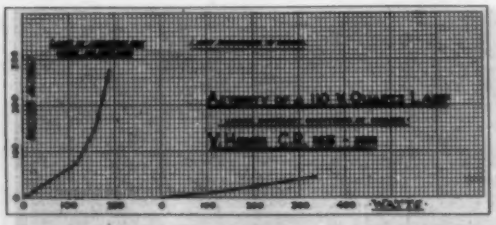

Fig. 8. Shows the Considerable Decrease of Actinity Due to Water Cooling.

eral and localized treatment, for superficial and deeper action, for the unfiltered white and the filtered blue light, I have used both the water-cooled Kromayer lamp and the air-cooled lamp.

The latter was designed and constructed for me by Otto Rothenstein, Chicago, with the considerations above mentioned in view. The lamp (Fig. 9) operates on a 220-volt direct-current circuit. The actual voltage across the arc is 185-195 volts. Current consumption at the instant of starting is maximal 6 amperes, which diminishes during regular running to 3.25-3.5 amperes. The length of the quartz tube is 15 cm., diameter 22 mm., which is considerably larger than that of the so-called "Hohensonne." Tests conducted on this lamp for the measurement of the ultra-violet rays output (method of Bering and Meyer, in Strahlentherapie Bd. I., H. 1 and 2, of decomposing KI. through the chemical action of ultra-violet rays, coloring it with a solution of starch and discoloring with a solution of 1:400 normal-sodium thiosulphate) showed this output twenty-seven times larger than that of the Kromayer lamp under the same conditions.

The lamp is suspended horizontally in axis of a cylindrical drum, over which a second shell turns, carrying the diaphragm with two shutters. Two levers control their action independently, so that rectangular sets of openings of any ratio and size within the capacity of the device can be had. Each lever is provided with a pointer, indicating on a scale below the size of the opening in one direction so that the diaphragm need not be in sight when it is adjusted.

The whole is suspended from an arm movable in every direction, the whole arrangement resembling somewhat the large type x-ray tube stands. The series resistance is mounted on brackets projecting from the upright, on which also the controlling switch is placed. A cable of sufficient capacity and an attachment plug complete the equipment, which is entirely self-contained and movable on casters. The lamp is started by tilting it by means of a small chain projecting from the housing and ignites promptly after the current is turned on. As there is no water cooling arrangement the lamp will operate for hours without any attention and wear on the whole apparatus is practically nil.

In reporting my experience with the use of the ultra-violet rays in dermatological practice I start with affections which have given me the best results.

1. *Alopecia areata* seems to be the disease most susceptible to the curative action of ultra-violet rays. I have treated three cases and in all of them have gained complete regeneration of the

Fig. 9. Rothenstein Air-Cooled Lamp.

hairs in treatments varying from 10 to 36 exposures to the air-cooled lamp. The accompanying photograph (Fig. 10) is from a girl 20 years of age who came to me in August, 1915. The affection started eight months previously,

for which she was treated with different medical applications without benefit. She had one large alopetic area on top of head, of round form, about four and a half inches in diameter, and two long oval spots on the sides. Wassermann reaction of the blood and microscopic examination of the hairs negative. She herself, being a telephone operator, attributed the disease to the excessive strain on the head produced by the transmitting apparatus. The second photograph (Fig. 11) was taken in January, 1916, after thirty-four exposures to the air-cooled lamp. With the exception of a few small spots, all the areas are covered with new, long, in parts unpigmented hairs.

2. *Lupus erythematosus,* especially of the scalp, is decidedly benefited by ultra-violet rays more than by any other method of treatment. One case in a girl, 22 years of age, the disease covering almost two-thirds of the scalp, having lasted four years and resisted all kinds of treatments. The patches were large, confluent, covered with thick scales and crusts, showing deep cicatrization and being painful. After thirty treatments the affected area showed soft cicatrices, all ulcerations had healed up, the scaling disappeared entirely, the surface became smooth and the disease apparently completely checked.

In a case of lupus erythematosus of the cheek, a disk, one inch in diameter, in a man, 28 years of age, of six months' duration, the patch had cleaned up with twelve radiations of the air-cooled lamp, but relapsed after three months, and I am now using the Kromayer lamp with compression with much quicker results.

3. *Seborrhea capitis* and *alopecia prematura.* The results are not as brilliant as in the former affections, but show some improvement as to justify their exposure to the rays. In alopecia prematura of long standing in a man 35 years of age I have succeeded in inducing a sparse growth of lanugo hairs, which, however, did not continue to show any progress in development.

4. *Onychia.* One case in a girl, 26 years of age, of very long duration. The nails of all fingers were dry and discolored, the edges thickened and brittle, the surface rough and pitted. The affection was not due to syphilis or any mycotic infection. Reducing ointments and x-rays, which I have used in this case during half a year, were absolutely without effect. Radiations from the air-cooled lamp showed considerable improvement after the first few exposures.

Fig. 10. Alopecia Areata of Eight Months Duration.

Fig. 11. Growth of Hairs in Alopecia Areata After 34 Radiations.

Fig. 12. Ringworm of the Scalp of 18 Months Duration.

Fig. 13. Growth of New Unpigmented Hair in Ringworm of the Scalp.

5. *Pityriasis versicolor.* One exposure sufficient to produce erythema and peeling removes the fungus completely. It is the treatment of choice on account of its cleanliness and swiftness of action.

6. *Lichen simplex chronicus* or neurodermitis, especially in the genito-crural region, I have found reacting to the ultra-violet rays better than to x-rays or medicinal applications.

7. *Ichthyotic skin* of children, especially when associated with persistent eczema, if not very

profuse, I have gained complete recovery after 4-5 repeated erythema doses.

8. *Eczema chronicum*, especially of the hands, in the form of dry scaly patches, at times relapsing into acute exudative swelling (eczema en plaques). In several cases, as also in the vesicular dermatitides of the fingers, I have gained quicker results from the ultra-violet rays than from any other method of treatment.

9. *Pruritus* and *urticaria*. The results of radiation in these affections are not uniform. In a number of cases the erythema produced by the light had aggravated the itching and burning, but in most of the cases the itching completely disappeared with the completion of the peeling.

10. *Acne vulgaris*. Curative effects are reported by various authors which I can, in the milder superficial cases, confirm by my own experience. But the erythema produced by the rays is so annoying and comparatively persistent, that only few patients are willing to tolerate it. The invariably good results which can be obtained by the x-rays without the production of any erythema, have kept me from using the ultra-violet rays as a routine method of treatment.

11. *Trichophytosis capitis*. I have tried the air-cooled lamp in two cases, in very small children, in whom it was difficult to apply the x-rays, in both with negative results, but a third case showed favorable results with the precision of an experiment (Figs. 12 and 13). It was in a boy, 9 years of age, with two large patches of microsporia, confirmed by the microscope. I have radiated with the air-cooled lamp only one larger patch on the top of head, treating the other smaller patch (not visible on the photograph, being covered, at place marked X, by overlapping hairs) with medicinal applications. After ten radiations the patch so treated showed a new healthy growth of hairs covering the entire area, while the other unradiated lesion remained without change. But I had this result only in that one case. The Sabouraud method of x-ray epilation is so safely applicable, that I did not feel the need of new experimentation.

12. *Vitiligo*. One case in a young lady, 22 years of age, with numerous small spots of vitiligo on arms and chest. It was possible by giving an erythema dose to bring out some pigment in the leucodermic spots. The difficulty is in shielding the margin so correctly as to prevent any rays striking the normal skin, which then becomes overpigmented.

32 N. State Street.

THE IMPORTANCE OF THE EXAMINATION OF THE LARYNX IN GENERAL PRACTICE.*

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There is a large class of patients under observation by the general practitioner who have definite laryngeal lesions which remain for a long time undiscovered, very often undiscovered until it is too late to do anything for the patient. These lesions range from superficial erosions and ulcerations to cancer of the larynx and from slight paresis to complete paralysis of the vocal cord. A simple examination of the larynx would have brought these conditions to light, but the examination is not made. The reason for this failure does not lie in the difficulty of a laryngoscopic procedure, as it could be easily overcome by the co-operation of the ever-ready laryngologist. The reason for the very frequent and deplorable failure to examine the larynx lies deeply rooted in the mental attitude of the physician who refuses to suspect trouble in the larynx, unless such trouble is absolutely apparent.

It is commonly supposed, even among physicians, that a lesion of the larynx will necessarily give rise to well marked and exceedingly distressing symptoms. It is associated in the mind with the horrors of edema of the glottis, with the dread of laryngeal diphtheria, and with the agonizing paroxysm on the sudden entrance of a foreign body in the subglottic region. For a patient to insure examination of his larynx he must be clutching at his throat, writhe in the agonies of suffocation, or be absolutely voiceless. Nothing else will suffice to engage attention. The appeal of a mild hoarseness, of a little cough, of some barely distinguishable change in the voice, is passed unnoticed. And yet, a mild hoarseness may mean cancer of the larynx, a slight change in the voice may mean a paralysis of a vocal cord.

There is yet another belief entertained by many physicians which accounts for the frequent fail-

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ure of giving proper regard to the condition of the larynx. It is held that the secondary involvement of the larynx in any general pathological process, occurs late in the disease at a time when the general process is fully developed and easily recognized. It is, therefore, not to be expected that in the early stages of many diseases when there is not enough evidence for even a tentative diagnosis, when the physician is disposed to treat the case expectantly and await developments, he should turn to the larynx in the hope of finding there, of all places, the master key to the situation. How very frequently does it happen that the making of a diagnosis is deferred for an indefinite period for the reason that the case failed to impress the physician seriously. There was nothing in particular to arrest attention; no danger signal is discovered; there does not seem to be any particular cause for alarm. An occasional cough, a mild hoarseness, a feebleness of the voice perhaps, chest examination negative or inconclusive, general condition fair; the physician does not feel justified in alarming his patient. It is most likely nothing serious. A prescription is given, the patient is reassured, feels better for a time, then comes back often to another physician who in his turn fails to be impressed and decides to await developments. And so weeks or months pass away; valuable time lost.

Suppose all this while the patient had an erosion, an ulceration or tumor of a vocal cord, or interarytenoid space, an infiltration of the ventricle of the larynx or the epiglottis, and suppose the condition had been discovered at the earliest opportunity. It would have constituted an imperative call for definite and decisive action as regards diagnosis and treatment.

It will be urged that when such conditions are present in the larynx they are not likely to be overlooked by the physician, much less disregarded by the patient whose complaints of pain and suffering referable to the larynx would make an examination certain. This, however, is not borne out by the experience of the laryngologist.

It is well, then, to point out and emphasize the important fact that serious lesions may exist in the larynx for a long time with but the mildest clinical manifestations. So mild, indeed, that unless one is on the alert, or one examines the larynx as a routine, he may easily overlook them, with incalculable loss to the patient's chances for cure. And it is also well to point out and emphasize the further fact that the larynx may become involved secondarily quite early in the development of many general pathological conditions, early in period of expectancy and temporizing. So early indeed, that if but discovered it would constitute the only definite finding on which to base diagnosis and treatment.

Tumors of the larynx are either benign or malignant. Of the benign tumors the most frequent are the papillomata. These warty excrescences may exist in the larynx without detection, and for a long time subject to the most bizarre forms of treatment, as the following cases will show.

Case 1. C. D., a blacksmith, forty-seven years old. Well nourished, general health good. Mild hoarseness of several years' duration, becoming worse during damp weather, and embarrassed breathing on exertion. Treated off and on for bronchial asthma for over eighteen months. Came to me in October, 1915. Examination showed a warty growth situated on the left vocal cord near the anterior commissure and almost hidden by the epiglottis. After removal of the tumor there was subsidence of all symptoms.

Case 2. Miss L. K., twenty-nine years old, a singer, with traveling stock company. She was forced to interrupt her work from time to time for the last twelve months on account of increasing hoarseness, irritative cough and some dyspnea on exertion. She was treated with gargles and sprays. No laryngeal examination was made. She consulted me six months ago. Examination of the larynx showed a small papilloma on a slender pedicle situated on the left vocal cord. Its removal was followed by complete disappearance of her inconvenience in singing and breathing.

Two cases which came under my observation and in whom I made the diagnosis of papilloma of the vocal cords have subsequently been operated on by Dr. Freer. Both cases, one a well nourished man of fifty-five years, the other an elderly corpulent woman with chronic valvular disease, have presented the symptoms of mild hoarseness and some dyspnea on exertion. Both patients were treated for various forms of asthma for a long time. The man has had a recurrence of the papilloma on the opposite cord, which was removed six months later, followed by disappearance of symptoms. In the cardiac case also the symptoms were much ameliorated.

Another case of interest in this connection is the following: H. B., forty-six years old, general condition good. He had a good singing voice which he was unable to use in singing for the last five years on account of hoarseness. He also had frequent attacks of nocturnal dyspnea. He was treated for years with gargles and sprays; no laryngeal examination was

made. He was finally advised to have an operation on his nose, for which he applied to the Infirmary. Examination of his nose disclosed nothing abnormal. Laryngeal examination disclosed a large warty growth on his left vocal cord seeming to spring from the ventricle and situated on a somewhat inflammatory base, suggesting malignancy. An attempt was made to remove the tumor by suspension laryngoscopy but was unsuccessful, owing to the fact that the tumor which was situated anteriorly could not be brought into view by this method. The removal of the tumor was accomplished by Dr. N. H. Pierce by the indirect method, followed by the rapid subsidence of all symptoms and the regaining of his singing voice.

Of particular interest is the occurrence of laryngeal papilloma in children which is thoroughly discussed by Sir Wm. Milligan.

What has been said in regard to papillomata, may be said with even greater truth of foreign bodies in the larynx. We are all familiar with the violent paroxysms attending the entrance of foreign bodies into the air passages. It is commonly taken for granted that no larynx will quietly submit to the continued presence of a foreign body. That is why it does not ordinarily occur to one to look for a foreign body in a more or less quiescent larynx. As a result of this mental attitude, it has come to pass that foreign bodies such as jack stones, open safety pins, arrow heads, tacks, rings, coins, etc., have been allowed to remain undisturbed in the throats and bronchi of children for weeks and months. Incredible as it may seem, it appears that the larynx as well as the bronchi meekly proceed to accommodate themselves as best they may to the presence of offending substances after the first attempts to dislodge them fails. The subsequent hoarseness, cough, dyspnea, cyansis, etc., are not unlike similar symptoms in ordinary affections of the air passages. These cases are, therefore, treated for various forms of bronchitis, laryngitis, pneumonia, tuberculosis, lung abscess, etc., until the foreign body is discovered by laryngoscopy, bronchoscopy or x-ray. Such cases abound in literature and interesting instances have been reported recently by Ingals, Friedberg, Boot and others of Chicago.

The neglect of the early diagnosis of benign tumors of the larynx, while not a serious omission, subjects the patient to futile treatment, and there is always the danger, especially in older patients, of a benign tumor becoming malignant.

It is, however, in the malignant tumors of the larynx that the failure of an early diagnosis is a most serious omission. In this connection one might read with interest and profit Dr. Freer's exhaustive article "The Diagnosis of Carcinoma of the Larynx," published in the *Journal A. M. A.* Feb. 7, 1903, from which I take the liberty of quoting the following: "It is unfortunately true that ordinarily carcinoma of the larynx is not discovered until nothing but total laryngectomy offers the patient a chance for existence." Among the causes for the lateness of the recognition of this disease is the slight regard paid by patients and even physicians to the persistent hoarseness that may precede the graver manifestations for years as the only symptom. I have known a patient to be sprayed for six months for supposed laryngeal catarrh by means of an atomizer and tongue depressor, while his unseen carcinoma rapidly advanced to a hopeless stage. In another case the laryngoscope was not used until the carcinoma had penetrated the laryngeal cartilages and presented itself as a tumor in the neck. A glance at the literature of laryngectomy will show how late carcinoma of the larynx usually comes to the operator. Chronic hoarseness, especially in men past forty should make a laryngoscopic examination an imperative duty to all practitioners. And again quoting the same author: "In the majority of cases hoarseness is the only evidence of commencing carcinoma for a long period, generally from one to three years. Chiari mentions a case in which hoarseness lasted for nine years before other symptoms made their appearance, and voice disturbance in his other cases extended over an average of two years before there was a change in the manifestations." The symptom of pain appears in the later stages of carcinoma characterized by sloughing and ulceration, and takes the form of otalgia occurring during swallowing or spontaneously and darts from the larynx to the ear, the angle of the jaw and the back of the head.

It is commonly held that destructive laryngeal lesions occur late as a complication of pulmonary tuberculosis. However that may be, it not infrequently happens that the discovery of a tubercular ulcer in the larynx is the first thing to attract attention to the case, as the following will illustrate:

A. G., twenty-two years old, well nourished young man, clerk in a mail order house, was treated in various dispensaries for cough for about nine months. His

tonsils were removed by one physician, a nasal operation was advised by another. He came to the infirmary in January, 1915. He did not complain of pain anywhere, nor did he appear ill. His only complaint was that of taking cold easily. He was working at the time and was anxious to keep at work, for he was the only support of his widowed mother. The temptation to temporize was great. But an examination of his larynx disclosed an ulcer on the left vocal cord, erosion of the interarytenoid space and congestion of the epiglottis. A tuberculin test proved positive. Bacilli were present in the sputum and the right apex and base of the middle lobe were found to be involved. The patient was sent to a sanitarium where, unfortunately, he came down with an acute lobar pneumonia on the second day of his stay there, which terminated fatally. It is my belief that a careful examination of the patient's larynx nine months before I saw him would have disclosed, in all probability, a tubercular laryngitis, which would have stirred up both patient and physician to proper action with the probable saving of the patient's life.

The point to be emphasized in this connection is that tubercular laryngitis occurs early in the course of pulmonary tuberculosis, and is the cause of the irritative cough when chest conditions are as yet indeterminate. Moreover, this laryngitis does not manifest itself by painful or alarming symptoms. It is only in the later stages when the deeper structures of the larynx become involved with perichondritis and ulceration of cartilages that the condition becomes painful. And I can cite you a case of an old man in advanced pulmonary tuberculosis and extensive laryngeal involvement, who, nevertheless, did not complain of his throat, the laryngeal condition being discovered on routine examination. Laryngeal involvement is not necessarily a self-evident condition. It may be overlooked. But when one is on the lookout for it, it may be discovered quite early in the progress of the causal affection and greatly aid in an early diagnosis.

When we turn to conditions of immobilization of a vocal cord and the laryngeal nerve paralysis we find the same observations to hold true with equal force. Vocal cord fixation when not due to paralysis of the recurrent laryngeal may be caused by tubercular, gummatous, or malignant infiltration of its musculature, or the crico-arytenoid articulation. It is rarely due to rheumatic arthritis of that joint. This fixation may occur quite early in the disease, its discovery would compel immediate investigation of the cause. Yet the condition is frequently overlooked for a long time because neither the objective nor the subjective symptoms of vocal cord fixation are at all pronounced. The same is true of nerve paralysis.

Paralysis of the recurrent laryngeal nerve may be either central or peripheral in origin. When peripheral it is due to pressure upon the nerve exerted by aneurysm of the aorta or its main branches, by cervical and mediastinal tumors, by glandular enlargements within and without the thorax, by cancer, abscess or cyst of the lung, and by tubercular infiltration of its apices. If central in origin, the pressure, however caused, is exerted within the cranium. Now, I wish to make the point, that long before the typical symptoms of aneurysm, for instance, become clinically manifest, the distending aorta may exert sufficient pressure to paralyze the left recurrent laryngeal nerve. Yet neither the subjective nor the objective signs of this paralysis are necessarily marked. They may be so mild as to be disregarded by the patient and overlooked by the physician. Imagine, then, the great value of the discovery of a laryngeal paralysis in such an instance! At once the physician's utmost skill and attention is summoned as by a trumpet call. All possible causes of laryngeal nerve paralysis are marshalled in view, aneurysm is suspected long before it has frankly manifested itself, a search is made, every clue is followed and an early diagnosis established.

It may be asked how it is possible for a laryngeal paralysis to be passed unnoticed. This will become evident on a brief consideration of the anatomy and function of the larynx.

The larynx is the isthmus connecting the lungs with the upper respiratory tract. It is guarded by the vocal cords which open and close it. It has a double function—respiration and voice production. For purposes of respiration the cords must separate moderately in quiet breathing, and widely in deep inspiration. For purposes of voice production, the cords must stand apposed. As is seen, these two functions are antagonistic and an impediment in the one function tends to favor the other function. The muscles that abduct the cords may be said to be the respiratory group, while those that adduct the cords may be considered the phonatory group. The superior laryngeal is the sensory nerve of the larynx. Its motor action may be disregarded

as unimportant for the purposes of our discussion. The inferior or recurrent laryngeal is the motor nerve for both the respiratory and phonatory groups of muscles. Let us suppose that the left recurrent laryngeal nerve, the one most frequently involved, is pressed upon by an aortic aneurysm completely paralyzing it. Both abductors and adductors are inactive, the left cord will remain midway between adduction and abduction, or in what is known as the cadaveric position. Quiet breathing is not interfered with in such a case, it is only on an effort at deep inspiration, as in running, or other out of the ordinary exertions, that embarrassment will ensue. So much for the respiratory function.

How will this complete paralysis of the left recurrent laryngeal affect the function of voice production? It is true that the left cord is unable to meet its fellow in the median line. But in such instances the right vocal cord has been known to display a truly beautiful sense of neighborly helpfulness so sadly and conspicuously lacking oftentimes in larger biological units, will cross the middle line towards its helpless brother, approach it in loving tenderness and vocalize in unison. This vocal product may, of course, not be perfect, it may not ring quite true. Its timbre may be cracked, it may possess a quality which the French authors term "bitonal," and if one is not alert to note this voice modification, slight in some cases, there will be little else to arouse his suspicion.

Suppose the recurrent laryngeal is only partially paralyzed. According to Semon's law, the abductors are affected while the adductors escape in such cases. The active adductors fix the cord in the median line, a position favorable for phonation, while the healthy cord, receding widely from the median line, can provide sufficient space for the ordinary demands of breathing.

It will, therefore, be seen that a patient in the early stages of aortic aneurysm may show for a time no other clinical symptoms than a slight modification of the voice which he himself may disregard, but by which the alert physician, taking note of little hints, may be led to investigate the larynx and light upon a finding which will carry him triumphantly to the victory of an early diagnosis.

Henri Aboulker reports twenty-two cases of laryngeal paralysis of various causes. He finds that in all these cases the paralysis occurred early in the course of the underlying condition. He further finds that this paralysis in most cases betrayed itself only by "bitonality" of the voice. He quotes Lermoyez as saying: "The larynx is the manometer of the thorax, it is the gauge of intrathoracic pressure." By a study of the larynx one may detect abnormal tension in the lungs. The reason for this will be appreciated when it is recalled that the recurrent laryngeal nerve in its long course down under the arch of the aorta on the left, under the subclavian artery on the right and up again in the tracheo-esophageal recess to the larynx, must, of necessity, be involved in the various pathological processes of these regions. The longer course of the left recurrent laryngeal into the thorax, and its relation to the arch of the aorta may explain the greater frequency of involvement of the left laryngeal over the right, which in Aboulker's series was seven to one.

While the discovery of an existing vocal cord paralysis or fixation is thus properly emphasized, it must be admitted that the attempt to determine the underlying condition is not always attended with success. In Aboulker's twenty-two cases the cause of the paralysis could not be determined in four cases. Of the remaining eighteen cases the causes were found to be as follows: Tracheo-bronchial glandular enlargements, three; pulmonary tuberculosis, seven; aortic aneurysm, two; carcinoma of the lung, one; hydatid cyst of the lung, one; cancer of the esophagus and thyroid gland, one; hysteria, one; cerebral syphilis, one; amyatrophic lateral sclerosis, one. The characteristic of hysteria paralysis being, that contrary to Semon's law, the paralysis affects the adductors while the abductors keep the cords widely open, rendering the patient voiceless.

The following case illustrates the difficulties met in attempting to determine the underlying cause of laryngeal paralysis. This, however, should only add zest to the ambitious investigator. I. L., forty years old, married, seven children living and well. Family history negative, no history or trace of specific disease. The patient is a well nourished, healthy looking man. Complaint, hoarseness of sixteen months' duration. Examination of the larynx shows paralysis of the left vocal cord in the median line. Wassermann test was negative. Treatment with k. i. produced no improvement. There are no enlarged glands on the left side of the neck. A radiograph taken from the pa-

tient was interpreted as pointing to aortic aneurysm of which there were no clinical manifestations. The diagnosis of aneurysm tallies somewhat with some of the features of the clinical history. There is noticed a shifting of the clinical picture from phonatory to respiratory symptoms. At the onset of his trouble he had suffered chiefly from some degree of dyspnea. There was no special difficulty about his voice. Some months later his breathing began to improve, while the voice took on a decided hoarseness and feebleness. One morning he awoke to find himself voiceless. As his voice began to improve his breathing again became embarrassed.

This shifting of the clinical picture from the phonatory function of the larynx to the respiratory function may be suggestive of aneurysm for the following reasons:

The pressure exerted by solid tumors, especially of the malignant type, is a steadily progressive one. The pressure exerted by an aneurysm is, on the contrary, a fluctuating one. Under rest and other suitable treatment the aneurysm may diminish in size. Again, the formation of a mural thrombus may greatly diminish the lumen, the blood stream, the distention and pressure. And this is the way these changes are registered in the larynx:

Referring again to the above case, we will assume that the symptoms at the onset were due to a partial paralysis of the recurrent laryngeal nerve. We have already seen that such cases follow the well-known law that the abductors are involved while the adductors escape. The paralyzed cord is fixed in the median line. This position is unfavorable for respiration but not unfavorable for phonation. Hence it is that such a condition will clinically manifest itself by varying degrees of dyspnea, while phonation is not embarrassed. Suppose the aneurysm increased in size, exerting a pressure sufficient to effect a complete paralysis of the recurrent laryngeal, that is of both abductors and adductors, then the paralyzed cord stands midway between abduction and adduction, a position which is more favorable for breathing than for phonation. Later on an improvement in the voice may result, either by the healthy cord learning to come across the median line, or an improvement in the aneurysmal pressure has again changed the complete paralysis into a partial one.

In conclusion, it may be remarked that the general practitioner is in a sense the central figure around whom are grouped the various specialties. Those organs regarding which the general practitioner entertains a lively concern stand a better chance of being early investigated. It is the purpose of this article to bespeak his solicitude for the larynx.

There are two methods of conducting an examination of the larynx: the indirect, where the laryngeal image is studied with the aid of a laryngeal mirror; and the direct method, where the larynx is so manipulated by appropriate speculi as to bring its interior into direct line of vision. And of late there has been added a procedure known as suspension laryngoscopy, where direct laryngoscopy is accomplished with the aid of a suspension apparatus. The technique of the various procedures, as well as the interpretative appreciation of a laryngeal picture, may be acquired by the general physician. The best results, however, will probably be attained from teamwork between the physician and the specialist.

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A RESUME ON FOREIGN BODIES IN THE STOMACH, WITH A REPORT OF AN INTERESTING CASE.

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Concerning amazing breadth of variety both in the diverse nature of the things dealt with and in the number of objects included, nowhere in the realm of surgery are there more interesting statistics than those relating to the lodgment of foreign bodies in the stomach, as depicted in the

literature and brought to our attention by personal experience.

Probably the first authentically reported is that of Schwabe (Hagens), who in 1635 removed a table knife from the stomach forty-one days after its ingestion, and from that day to this we read quite frequently of knives, forks and spoons, not to mention instances in which the china-closet has contributed an attractive tid-bit.

In 1855 a bar of lead nine inches long was the object of choice, the second similar being a bar of the same metal ten inches long, removed by Dr. Bell in 1893.

Surgical instruments were swallowed as long ago as 1883, when Kocher removed a broken coin catheter from the stomach and are again noted in 1907, when, during the use of a whalebone esophageal probang, the instrument was broken and seven inches of whalebone and a sponge tip left in the stomach (Berbie).

Gussenbauer (Defontaine) removed a broken sword blade, 10¾ inches long, in 1883, about which time artificial teeth appeared on the list, in the cases of Billroth and Crede. From now on we find not so much single objects, but rather the presence of aggregations of both numerous and varied bodies. Caven and Weir report the swallowing of a knife, fork and spoon by an insane patient, who retained them for three months before death.

Beck, in 1911, removed nineteen pieces, including a silver dollar, and several jack knives with bone handles, from the stomach of a patient at the Cook County Hospital. The operation was observed by the author. Several of the bone handles had been partially digested so that the blades, rivets, etc., were loose.

Benjamin, in 1907, treated the case of a glass and nail-eater, who had habitually eaten pieces of glass as large as his thumb for a period of twenty years, and for the preceding five years had swallowed 8- and 10-penny nails. On operation, fifty-two nails in various stages of erosion and five pieces of glass were removed. The nails were in bunches and a number imbedded in the stomach wall and surrounded by exudate.

In the same year, the autopsy of an insane patient revealed in the stomach, one piece of ½-inch rubber tubing 18 inches long; one piece of ½-inch rubber tubing 14 inches long; five large red bandanna handkerchiefs; one teaspoon; one necktie, with scarf pin in place; one pair of spectacles; one rodent's skull; and a piece of rubber band from a suspender. (Smith.)

Gastrotomy on another insane patient resulted in the removal of 14 broken spoons and their handles, and in another, a victim of melancholia, forty-two nails were found. (Lancet, London; 1911, i., 625.)

Vanderwest and Mills found on necropsy of an insane patient, the remarkable number of 1,446 foreign bodies, mostly nails, screws, bolts and pins weighing in all 2,268 grams. Two years later, in 1913, Matthews removed an aggregate of 1,149 hairpins, pins, nails, etc., weighing one pound and two ounces, from the stomach of a victim of manic-depressive insanity. Very recently Tilton reports the swallowing of five spoons by a psychopathic patient, resulting later in a perforation of the jejunum and peritonitis.

It will be observed that, in the cases so far noted, the entrance of the foreign bodies into the stomach of the adult is generally referable either to habit, as in nail-eaters as in Pollard's case, or to mental conditions affecting judgment. These constitute the greater group of those suffering from lodgment of foreign bodies, the lesser being the number of recorded cases where the victim has been a child. The latter are, relative to the number of times foreign bodies are swallowed, comparatively rare, as a child seldom swallows any objects of considerable size and small bodies, as coins and buttons, and even pins, tacks, etc., are usually passed in the stool without having occasioned any serious trouble.

Some fifteen years ago the author witnessed Dr. Charles Adams remove a finishing screw 1½ inches long from the stomach of an infant.

McCartney removed a button-hook 3¼ inches by ¾-inch in size from the stomach of a six months' old baby and Hitzrot reports the case of a fourteen months' old child who swallowed a stick-pin with a Lincoln-penny head. In this case the gastrotomy was performed seven days after and the point of the pin found imbedded in the stomach wall. Mayo Robson removed 152 pieces, tacks, nails, etc., from the stomach of a girl 12 years of age.

Investigation of these cases will show that the discovery of the foreign bodies has been comparatively easy, the x-ray now being of the utmost assistance. The history of the case, when habit

is to be blamed, is of value, but among the insane and in the cases of children, this loses practically all of its value. The symptoms resulting from the lodgment of these foreign bodies in the stomach are not invariably as definite as one would at first thought suppose, and it is not always the small bodies that give the most elusive symptoms. Furthermore, gastric disturbances, while they may be perceived subjectively, do not invariably progress to the stage at which body nutrition is disturbed, a point rather unusually demonstrated by Edgerton who found a heavily corroded spoon in the stomach of a dissecting room cadaver who was in an excellent state of nutrition.

The case which we will now report is remarkable in the size of the object, a case knife 9¼ inches long, and weighing three ounces, and in the length of time during which incorrect diagnoses were held.

Mrs. H., aged twenty-four years, married and has two children. Has always enjoyed excellent health until eight months ago, when she was taken ill with typhoid fever, and was cared for at the County Hospital. She recollects getting up in the night in a period of mental disorientation in the course of the disease, and going to the kitchen, purloining a knife, and, having returned to bed unobserved, proceeding to swallow it. The effort required and difficulty met in forcing it down her throat is still clear in the mind of the patient, but so strong was the impulse that she was unable to desist, finally succeeding in causing the instrument to pass into the stomach. In the morning she told the nurse and physicians of her experience, but they, remembering, no doubt, the mental condition of the patient on the preceding evening, paid no attention to her story. She repeatedly complained of the incident to the House Staff, but no consideration was given to the matter. The patient, however, thoroughly believed that the event had taken place, though unable to convince anyone else. She finally left the hospital convalescing and returned to her usual duties, at length doing her housework and caring for her two children.

At times, following the exertion of doing the family washing, scrubbing the floor, riding in the street car, etc., she would be taken with severe pains in the abdomen, colicky in character; vomiting was not present at any time. For this, several neighborhood physicians were consulted, and tonics and dyspepsia tablets prescribed. The patient did not improve, the spasms recurred, and she continued to lose weight. Her weight, previous to the fever, was 140, and at the time of operation 110 pounds.

After a period of eight months following her discharge from the County Hospital, during one of those severe attacks, she consulted Dr. John J. Pflock, one of our associates, who, after a thorough examination, referred the lady to us for final diagnosis. Mrs. H. had long since ceased to tell the story of the knife, and made no mention of it to either Dr. Pflock or to myself. On November 19th we made a complete physical examination, finding a mass about the size of a lemon in the right hypochondriac region, so sensitive that definite palpation was out of the question. It was fixed and associated with much rigidity. Perigastric abscess or a right pyonephrosis were the tentative suggestions. Further examination by the x-ray was advised, to determine the exact location of the trouble, and arrangements were made for this to take place Saturday, November 20. As we were leaving the patient, she called to us and asked if it were possible for one to swallow a knife. We discussed the status of this matter and mentioned a case reported by Dr. Bernays, many years ago; whereupon Mrs. H. retold her story. Without paying any particular attention to the possibility of this being the fact, we explained that if the knife was there, it would be shown by the x-ray. We left orders for a picture of the right hypochondriac and kidney region.

Next day the radiograph was made as ordered and upon its development the Roentgenologist was surprised to see a dense shadow, decided the plate to have been previously exposed, and took a fresh picture. The second plate showed the same thing; inspection revealed the shadow to be that of part of the knife, thus confirming the story of the patient.

On the following Tuesday Mrs. H. was submitted to operation at the West Side Hospital. A gastrotomy was made, Dr. J. R. Kauffman, Dr. John J. Pflock, and the house surgeon, Dr. John T. Sullivan, assisting. Nitrous oxide-oxygen anesthesia was administered by Dr. R. R. Bosworth.

A four-inch median line incision was made between the ensiform and umbilicus and, upon opening the peritoneum, the anterior wall of the stomach presented, to all appearances, normal. Upon digital

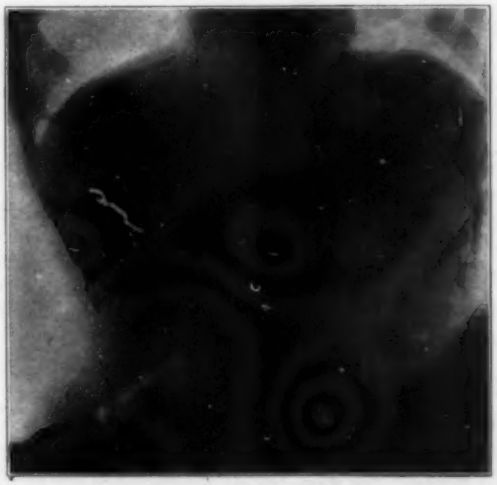

Fig. 1. Patient Standing.

Fig. 2. Patient Prone.

exploration a large mass made up of omentum and contiguous viscera was found at the right lower border of the stomach. The knife was easily palpable in the posterior portion, the handle, which was down, being more or less fixed. Upon further exmination the blade or upper end was found to be movable and with gentle pressure of the fingers underneath we were able to dislodge the tip and pass it along on the anterior wall of the stomach to a point easily made accessible by enlarging the skin incision one inch. Removal was accomplished thus without any tension or traumatization. The anterior wall of the stomach was grasped and elevated out of the abdomen and, after completely walling off and protecting the general peritoneal cavity by laparotomy sponges, the organ was cut transversely, enough to admit a finger. With the left hand the blade was again displaced and when it appeared at the opening was easily withdrawn. The stomach wall was closed with a double purse-string suture, reinforced by a continuous Lembert, linen being used. The abdominal wound was, as usual, closed without drainage, the last skin suture being tied twenty-four minutes from the time of beginning the primary incision.

The patient recovered consciousness without delay and was not distressed by nausea or vomiting. She was placed in the Fowler position and the stomach put to rest for three days, sips of water being administered occasionally. Normal saline solution, ounces vi, was given high into the colon every three or four hours. Upon the eleventh day patient was up and about, leaving the hospital on the thirteenth day following operation.

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SELECTED CHAPTERS ON THE TREATMENT OF NERVOUS DISEASES.*

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In the time allotted to my portion of this symposium I shall briefly discuss the subjects of epilepsy, brain and spinal cord tumor, and these chiefly from the surgical viewpoint.

Epilepsy. Though few physicians of today dispute the propriety of an operation for a recent case of epilepsy caused by skull fracture, subdural hemorrhage, or brain tumor, there are still those who strenuously oppose surgical interference for cases of traumatic epilepsy not of recent date. Among the last class must be counted some neurologists with ultra-conservative tendencies. Of course, trephining is frequently done as a matter of prophylaxis against the development of epilepsy in cases of skull fracture, with or without convulsions; also in those cases presenting evidence of trauma in the form of depressed scars in the skull, especially when sensitive to pressure. These are the directly traumatic forms of epilepsy. More numerous, however, are the cases which may properly be called indirect traumatic epilepsy. These are the cases in which there are no visible signs of skull injury, and yet in which such trauma has actually occurred perhaps a long time ago. In these cases, too, we often lack a reliable history of trauma, for it is known how little dependence can be placed on the statements of relatives, who attribute much importance to insignificant events, and perhaps ignore the real etiologic factors.

In the light of what follows, I believe we have been altogether too conservative in attacking epilepsy in a surgical way.

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Tilmann, who operated on twenty cases of traumatic epilepsy with rather indefinite signs of trauma, found only one case without pathological changes in the brain—in all the others there were distinct evidences of chronic inflammation in either skull or membranes. In addition, he found edema of the arachnoid and numerous white striæ following the blood vessels—an evidence of chronic inflammation of the arachnoid. Siegmund Auerbach, the author of a splendid monograph on the surgery of the nervous system, and to whom I am indebted for much contained in this article, states that similar findings have been frequently observed in cases of so-called idiopathic epilepsy, and he has been seriously debating the question of operation for all cases of epilepsy. In an interesting article on the surgical treatment of traumatic epilepsy, Tilmann observes that trauma in a region other than the central convolutions may take ten years to produce epilepsy, while six months may be sufficient to establish epilepsy, provided the motor areas have been traumatized.

Though much work has been done on the metabolic changes in epilepsy, little or nothing was gained for therapy. It is but natural, therefore, that we should turn for guidance to the pathologist.

Perhaps the best studied organic disease of the brain frequently associated with epilepsy is the disease called infantile cerebral palsy. The laboratory reactions in the association studies of the epilepsy of cerebral palsy being practically identical with those found in idiopathic or genuine epilepsy, we may infer that the pathology is also similar. The brains of patients with encephalitis, terminating in cerebral palsy, show numerous scars and organized connective tissue over the cortex, causing more or less constant irritation of the brain centers, and culminating in the epileptic convulsion. Marie and Freud, basing their opinions on postmortem findings, believe that the so-called idiopathic or genuine epilepsies are nothing more nor less than rudimentary types of cerebral palsy, and they place, therefore, epilepsy among the organic cerebral disorders. Following out this idea, Redlich reinvestigated the entire subject from pathological and clinical viewpoints. His investigations lead him to insist on the necessity of careful clinical examinations of the epileptic — searching for slight motor disturbances, and apparently insignificant palsies in the cranial nerves, such as the facial and hypoglossal, as well as for differences in the reflexes on the two sides, besides noting the existence of even mild aphasic disturbances, hemianopic and other focal signs. Of value in this connection may be a history of headaches, localizable in certain areas; also tenderness on percussing certain parts of the head, and, lastly, the presence of vaso-motor phenomena when limited to one side. Needless to state that the discovery of the Babinski sign or of one of its equivalents localizes definitely a lesion on the opposite side. Though the bulk of the brain is still occupied by so-called "silent" areas, yet in a large number of cases some one symptom will point to the seat of trouble.

It is now known that both varieties of epilepsy have a similar pathology, for the histo-pathological findings in the brains of patients dead from epilepsy have revealed numerous changes in the form of chronic inflammation, so-called irritation encephalitis. When we reflect that there are very mild forms of encephalitis in childhood, types which formerly were considered either simple febricula or indigestion, we need not wonder that many an unrecognized encephalitis in childhood was subsequently diagnosed and treated as a case of idiopathic epilepsy. These researches seem to prove that there are no radical differences between the various types of epilepsy, that such differences, if they exist, are not of kind, but merely of degree.

Reasoning from the foregoing premises, then, the surgical treatment of epilepsy should receive our serious consideration.

The first question to be answered is: Which cases of epilepsy should be referred to the brain surgeon?

Only those cases should be considered proper subjects for surgery who have received prolonged treatment by means of good-sized doses of bromides, have followed the prescribed dietetic and hygienic rules, and yet have received no benefit.

Operation is contra-indicated in cases of repeated *petit mal* attacks, and also in the psychic forms of epilepsy.

Obviously, the cases of traumatic Jacksonian epilepsy which were not benefited by the usual treatment should be operated on, for the probability of dementia is great, and the operative risk small.

Cases of Jacksonian epilepsy, not of traumatic origin, but probably caused by cortical disease, such as tumor, cyst, or abscess, are proper subjects for operation. Even if the operation prove to have been only an exploratory one, it was worth while performing, for many lives have thereby been made more endurable. An operation to be of benefit should be undertaken before the epileptic habit has been thoroughly established.

Cases of long standing, in whom there was already beginning dementia, have not infrequently benefited by operation.

Positive indications for operation are: An increase in the number of attacks, as well as the development of paralysis and signs of beginning deterioration.

Operation yields the best results during the periods of childhood and early adult life, for at these times the recuperative powers are greatest, while patients past middle age are not nearly as good risks and should therefore not be urged to undergo operation, except when the indications call loudly for interference.

In the idiopathic cases one may be guided by the aura, which may always begin on one side, or the appearance of definite post-convulsive disorders limited to one side; there may be a definite history or evidences of trauma or of past encephalitis, and, lastly, the history of a beginning as unilateral convulsions may be helpful.

Having decided to operate, what shall the operation consist of? When the indications as to the exact seat of the lesion are not clear, a decompression operation over the right fronto-temporal or subtemporal region should be done, thus sparing the speech centers on the left side. With a history or signs of head injury, the site of trauma should be chosen for operation. Where a depression in the skull from trauma is present, the probability of the convulsions being caused by dural adhesions at this point should suggest it as the place of surgical attack. When distinct paresis is in evidence unilaterally, or if convulsions are limited to one side, it is best to enter the brain on the side opposite. Should the operator, after opening the skull, find a subarachnoidal cyst or tumor, he will no doubt remove the latter. When signs of past trauma to the arachnoid or dura have been discovered, modern operators first accurately determine the seat of primary irritation by means of unipolar faradization and then operate. After removal of a subcortical cyst, Krause advises to sacrifice a portion of the surrounding brain substance, as there is a probability of the diseased tissue subsequently causing recurrent attacks of epilepsy. Indeed, in some cases it may be best to excise a portion of the entire depth of the cortex down to the white substance, provided proper localization of the exact beginning of the convulsion is possible. While in the majority of cases the right side is to be preferred, yet when symptoms point directly to the left side as the seat of trouble, there should be no hesitation in excising a portion of the left hemisphere. Authorities differ on the amount of cortex mass to be excised; some believe that two to three millimeters are sufficient, while others advise excision of the entire gray cortex down to the white substance. Following the operation, every patient should again be placed on the usual drug and dietetic treatment for epilepsy, which includes a *salt- and meat-free diet.*

In concluding these remarks on epilepsy, I may summarize by the statement that in view of the helpless condition of a large number of epileptics inhabiting our public institutions, and the still larger number who remain at home and are permitted to become demented, it is our duty to give much attention to these unfortunates. Many can and should be helped by surgical means directed to the source of trouble, which is not, as some abdominal surgeons maintain, in the intestines, but rather, as we believe, in the brain.

Brain Tumor. The statement that the treatment of the majority of cases of tumor of the brain and of its membranes is surgical should need no comment. Experience teaches that patients with brain tumor not only suffer intense headache, in addition to the other symptoms of pressure, but the majority of them eventually become blind. No wonder the celebrated Horsley characterizes the so-called "expectant" plan of treatment of brain tumor as an inhuman and barbarous procedure. In this light it is remarkable with what pertinacity short-sighted physicians oppose operation when neurologists have made a definite diagnosis of tumor of the brain, and perhaps accurately localized the tumor, which is not always possible. Admitting even that in some instances symptoms of brain tumor have been simulated by the so-called pseudo-tumor of Nonne, and the so-called meningitis serosa in-

terna of Quincke, operation has benefited the patients and was the only logical treatment. Though Oppenheim believes they might have recovered without operation. Borchardt is firmly convinced that these patients should be operated on. While it is true that the statistics of cases of brain tumor successfully operated on are not as brilliant as we wish them to be, even if one out of every ten cases has been saved the miseries of a progressively growing tumor, the attempt was worth the effort. Besides, the new method of bloodless operation, the two-step modification, combined, as it may be, with local anesthesia, robs operation of many of its terrors. When we further reflect that our diagnostic methods have been steadily improved during the past few years, especially the technic of Roentgen examination, which reveals to our eyes the changes in the sella turcica, as well as the indentations of the convolutions on the internal table of the skull and also the enlargement of vessels, caused by an increase of pressure—all of which can be seen in any good radiogram; further, that the examination of the spinal fluid almost enables us to exclude syphilis; and, last, but not least, the new differential diagnostic work of Bárány, which helps to confirm the presence or absence of cerebellar disease—diagnosis of brain lesions has become comparatively easy. One of the things which must be repeatedly emphasized is that no case should be operated on until every diagnostic resource has been applied, first, to ascertain the existence of a brain tumor, and, secondly, to definitely localize the same. For it is well known that occasionally an insignificant sign, such as asymmetry of the face, or a slight difference in the tendon reflexes, or in sensation, of no importance by itself, may in connection with other signs and symptoms constitute a focal sign. Indeed, to ascertain merely the presence of a slight muscular twitch, epilepti-form in character, or a difference in sensation, may be the equivalent of the making of a correct localizing diagnosis.

When, owing to the absence of localizing signs, an exact focal diagnosis cannot be made, the case is one for palliative operation, provided, however, that there are present the general symptoms of brain pressure, such as headache, vomiting, choked disc, vertigo, slow pulse, convulsions. I firmly believe that the brightest star in the firmament of brain surgery is the decompression operation. On close investigation, it will be found that the majority of cases of hypophysis disease operated on have been merely decompressed. The most urgent object of the palliative operation of cerebral decompression, whether it is done on the right temporal or parietal, the occipital or basal (hypophysis) regions, is to save vision after the appearance of choked disc. When papilledema has been allowed to become an optic atrophy, the time is passed for any kind of head surgery. In this connection I wish to plead for the operative treatment of gummatous tumor. Even specialists of fame, both here and abroad, have for too long a period pinned their faith to antispecific treatment in cases which were rapidly becoming blind, persistently decrying operation, while permitting the last ray of light to be shut out of the patient's eyes by the oncoming atrophy. Never shall I forget the case which I saw in 1903 in the late Gussenbauer's clinic in Vienna. The patient, an undoubted sufferer from cerebral syphilis, had wandered from one clinic to another, until he reached Europe's biggest neurologist, who advised against operation. Eventually, when the patient became almost blind and his mentality was reduced to that of idiocy, he was referred to Gussenbauer for operation. An enormous gumma was found occupying almost the entire frontal lobe. The tumor was removed, but too late to save either life or vision.

Horsley's advice not to spend more than six weeks' time with antispecific medication appears to me quite sound. If, after the expiration of this period, no benefits accrue from large doses of mercury and iodides, and no contraindications are present, he operates at once and resumes the antispecific treatment later.

Spinal Cord Tumor. Perhaps one of the most promising fields of the surgery of the nervous system is that relating to spinal cord tumor. Now that physicians have begun to think of the possibility of cord tumor when they encounter a case of persistent neuralgia, many more cases of spinal cord tumor are being diagnosed and operated on. Success in this field is more easily achieved than, for instance, in the brain, firstly, because of the ease with which a tumor can usually be localized, and, secondly, because the operation in the hands of only moderately skilled surgeons is usually unaccompanied by the complications incident to the surgery of the brain. It is, therefore, regrettable

that the spinal cord, unlike the brain, is not more frequently explored for the existence of tumor. Since Elsberg, of New York, has shown that even tumors growing in the substance of the cord are amenable to successful removal by his two-step operation, there are practically no contraindications left for laminectomy of supposed cord tumor. Quite recently we have learned of the existence of circumscribed collections of fluid in the arachnoid, giving rise to symptoms identical with tumor, and it is especially in such cases that brilliant cures are achieved by the mere incision and dissection of the spider-web-like sac circumscribing the fluid and exerting pressure on the cord. In conclusion, I wish to lay stress on the necessity for calling in surgical aid in any case of obscure spinal trouble. Many are the cases that could have been saved an untimely end had they been given the opportunity of an exploratory laminectomy. With the globulin test, the lymphocyte count and the Wassermann test to exclude syphilis almost to a certainty, there is no excuse in feeding a patient to death with iodides in the hope that "something may happen."

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NEURASTHENIA.*

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One fact the recent studies of the psychoneuroses has brought out is that idiopathic or essential neurasthenia is not as common as is generally supposed, or as frequent as ordinarily diagnosed.

It is admitted that there is a predisposition on the part of those who develop neurasthenia, an instability of the nervous system, a neural inadequacy that is brought forth by some physical disturbance or metabolic imbalance. In other words, every case of neurasthenia has a possible organic disorder underlying it and is, therefore, more often a symptom of disease than a disease per se; really manifestations reflexing from some somatic disease.

The term neurasthenia, therefore, is like the term rheumatism, one which covers so many different states as to have no satisfactory meaning in medicine. It is an unfortunate and vague medical name the use of which is in most instances unjustified. It is made much of by the physician who makes a cursory examination and who treats symptoms generally, regardless of etiology.

Inasmuch as the symptoms of neurasthenia are merely expressions on the part of the nervous system of the action of some irritant or physiologic perversion, or is probably a nervous affection with lesions which still escape detection, it devolves upon the clinician to make a careful and persevering search to find the cause. Indeed, a judicious and exhaustive physical examination serves the double purpose of setting at rest whether or not there is an organic disease, and convincing the patient that the physician understands his case.

"To err is human, to diagnose divine," is aptly applied to neurasthenia. Continued fatigue in the physical and intellectual spheres, irritability, pressure headache, shifting pains, insomnia, gastric and intestinal disturbances, diagnosed as neurasthenia without searching for a probable organic basis, or considering them as secondary to something more serious, is an error of omission on the part of the physician. It bespeaks carelessness and medical incompetency that is not infrequently of grievous consequence to patient and physician. Watchfulness and a certain amount of skepticism in a case of neurasthenia is often rewarded by discovering some curable disease long disguised by neurotic symptoms to the decided benefit of the patient.

The medical literature is replete with reports of malnutrition, autointoxication, toxemia, early and latent pulmonary tuberculosis, atypical syphilis, arteriosclerosis, uremia and albuminuric retinitis, which at first had been an apparent neurasthenia. Diabetes, mild exophthalmic goiter, brain tumor, multiple sclerosis, alcoholism and incipient general paresis have been inaccurately and erroneously diagnosed as neurasthenia. This is offered as evidence to support the view that neurasthenia is a more or less physical disorder due to some cause extraneous to the nervous system, and masking an unsuspected organic lesion which, if not already present, may reveal its existence a little later.

It is generally admitted by internists that one of the conditions most difficult to diagnose is very early pulmonary tuberculosis. At this stage of the disease there are little or no obvious lung find-

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ings. It betrays itself, however, as Pottinger points out, as a toxemia having as symptoms malaise, lack of endurance, loss of strength, nervous irritability, loss of appetite, digestive disturbance, loss of weight and anemia. These symptoms are characteristic of neurasthenia and unless one is guarded in diagnosis, a curable condition soon lapses into a hopeless one with the resultant tragedy. Head contributes a number of detailed cases of concealed tuberculosis diagnosed as neurasthenia, and deduced that almost all cases of the neurosis are latent tuberculosis.

If 90 per cent. of the so-called neurasthenics give a reaction to tuberculin, and if patients exhibiting symptoms of the neurosis, but without apparent trace of tuberculosis later develop this pulmonary affection, then the symptoms of neurasthenia should be held to stricter accountability. and systematic temperature readings or tuberculin tests should be carried out in cases under suspicion. It is stated that the symptom complex of neurasthenia, plus slight elevation of temperature on exertion, plus rapid pulse, means pulmonary tuberculosis.

That protean disease called syphilis is often masked by symptoms resembling neurasthenia. In fact, the results of the Wassermann reaction have been more than once the source of astonishment and chagrin to the practitioner who unwarily diagnosed cases as neurasthenia. Krebs, Thomas and Ball give percentages showing the relationship between syphilis and neurasthenic symptoms. General paresis, that dread syphilitic disease, very commonly opens as a picture of neurasthenia. Joseph Collins says in this connection: "The early symptoms are those that are commonly spoken of as neurasthenia; namely, nervousness, pains in the different parts of the body, especially in the arms and legs, and change of outlook towards the world. In a great number of instances there is in the same patient insomnia, fatigue without attribution and mental irritability. In reality, therefore, it may truthfully be said that in half the cases of general paresis the patient's complaints at first are more or less indefinite, made up of symptoms considered subjective, and founded often in apprehension, which cause the family and, regretably, the physician, to treat the condition lightly." He points out that early recognition of general paresis is susceptible to treatment, and quotes cases to support his contention.

Calling a patient neurasthenic while overlooking a sluggish or noncontracting pupil to light, exaggerated reflexes, a history of change of character as related by his intimates, not only is a deserving humiliation to the physician so diagnosticating, but also is allowing at large an insane person, an individual whose freedom constitutes a potential menace. In early tabes slight pains in the legs, somewhat disturbed gait, defections of vision, pupillary inaction, slight bladder derangements, and even a mild gastric crisis are often called neurasthenia at a stage when a great deal can be done.

In the recent activity of exploring the slightly known region of the endocrine secretions, writers have found that many of the ductless glands when disturbed give symptoms analogous to those found in neurasthenia. It has been observed that the neurasthenic conditions are due to an undersecretion of the suprarenals, the insufficiency bringing about low blood pressure and poor circulation, a frequent symptom in the neuropath.

Tom Williams claims that disthyroidea, as well as other glandular irregularities, is responsible for disorders labeled neurasthenia, and Reeder says that in patients with neurasthenia a close examination of the neck will disclose in more than 50 per cent. dysfunctionating thyroid. In thyrosis, fatigability of the individual is greatly increased and other neurasthenic symptoms supervene, and most patients with thyrotoxicosis exhibit constantly many of the stigmata of neurasthenia.

Enteroptosis and other visceral displacements, lacerated perineum, torn cervix, procidentia uteri, and other abdominal and pelvic disturbances are frequently contributary causes to neurasthenia. We see these patients every day going from one physician to another, infesting the dispensaries, without relief until some wise physician sifts the matter to the bottom and applies the necessary treatment.

Just how much harm prevention of conception in the form of coitus interruptus really does is hard to estimate, but there is no question that the habitual "withdrawal" on the part of the male and lack of sexual gratification in the female is a fruitful source in the creation of the neurasthenic.

I think that in most cases of neurasthenia, especially in married patients, the sexual relationship should be gone into. Discreet questioning along this line will often elicit important etiologic factors. The sexual neurasthenic, so-called, has long been the despair of the general practitioner. No form of neurosis, perhaps, is so mishandled as is the sexual neurotic, all because so little had been done towards finding a possible organic basis for the trouble. Now the enterprising genito-urinary specialist finds that sexual neurasthenia is a definite condition of the genito-urinary tract in the form of an inflammation of the verumontanum and a few applications of silver nitrate to that part is a long way towards a cure.

Dental diseases, painless or otherwise, have been reported as being a factor in producing neurasthenia and appropriate treatment brought relief. Gastric atony, lead poisoning, carcinoma of the stomach, defective vision, diseases of the nose and other organic diseases have been variously and perhaps justly implicated as the cause of neurasthenia, and so on *ad infinitum*.

All the foregoing is purposive in pointing this moral: That the diagnostician should not take anything for granted in the presence of neurasthenic symptoms and that the term neurasthenia is one to be used with caution and a great deal of reservation, if at all. A physician making an indiscriminate use of the term, and if it is the liveliest part of his diagnostic repertoire, to cover a multitude of disorders he does not recognize, he is remiss in the responsibilities he owes his patient, betraying his unskillfulness and lack of the right kind of medical experience. Keener observation, clinical circumspection, carefulness, more belief in the benefits of the laboratory, and above all a thoroughly searching history of each patient will soon do away with the misuse of the term neurasthenia.

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MENIERE'S DISEASE.*

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One can readily understand why Meniere, in 1861, believed that he was dealing with an entity when he associated vertigo, nausea, vomiting and absolute deafness with the condition where the post-mortem examination showed hemorrhage or bloody extravisates into the semi-circular canals and vestibule.

Flourens, in 1824-25, had made sectioning of the semi-circular canals and observed and noted the effect, but Goltz had not yet voiced the idea that they were the organs of equilibration, but why writers of today should continue to consider symptoms complex as a pathological entity one is at a loss to understand, for be it understood that it is around a single post-mortem reported in 1861, where neither the cause of deafness nor death itself was disclosed, that all the literature of Meniere's disease has been built up. He has given us a description of the first case observed clinically coming to autopsy:

> The patient, a young girl, who in consequence of a cold at the time of her catamenia, suddenly became deaf with symptoms of severe dizziness and vomiting and died on the fifth day of the disease. The autopsy revealed an unaltered state of the brain and spinal cord, but showed that the semi-circular canals were filled with a reddish plastic exudate, which extended partially into the vestibule and that the cochlea was in a normal state. The cause of death was not explained by conditions found at the post-mortem examination, nor was the cause of deafness explained, as the cochlea was normal and the brain free from disease.

Politzer's case was that of a woman 56 years old who fourteen years previously suddenly became deaf, with temporary unconsciousness and with symptoms of the apoplectic form of Meniere's disease. The post-mortem examination showed a boney growth on the external labyrinthine wall, the origin of which was probably due to an inflammation of the lining membrane at that place. Among the cases of hemorrhage in the labyrinth reported in literature there is

*Read before the Chicago Medical Society, April 19, 1916.

no other case according to the author's knowledge of the apoplectic form of deafness in an individual in whom the ears were previously normal. (Politzer.) Shortly after the publication of the work of my father on the "Lesions of the Internal Ear, Causing Symptoms of Apoplectiform Cerebral Congestion," (Gazette Medicale, 1861), the attention of otologists was attracted by facts of the same nature that they had had occasion to observe.

Many years passed and it was Duplay who (the first in France) proposed calling this labyrinth affection "Meniere's Disease," in order to honor the former chief physician of the Deaf Mutes of Paris, who had first described the group of vertiginous phenomena due to a lesion of the internal ear.

Since that epoch research has continued, observations have multiplied, and many authors have wished to include under the name of Meniere's disease all equilibrium, vomiting and deafness.

The result is a regrettable confusion which will not cease until new facts proved by autopsy will have cleared up this point in pathology.

In studying the functional troubles I have given a description of the syndrome of Meniere. This syndrome, whether complete or incomplete, may be in connection with functional troubles, or may be due to a lesion of the internal ear. But on the other hand the functional troubles may be direct or come from a cerebral cause. Thus is explained the frequency of the syndrome as well as its special character.

One must not, therefore, confound Meniere's syndrome, which is found in a great number of aural affections, with Meniere's disease, characterized anatomically by a primary or secondary lesion of the labyrinth, and clinically by the syndrome previously described.

Pathological Anatomy—The autopsy of the case cited by my father showed an exudation of blood in the semi-circular canals and also the absolute integrity of the cochlea. Politzer reported a case with fracture of the petrous bone with fissures; he found an effusion of blood in the entire labyrinth. During life, the subject had presented all the symptoms of Meniere's disease. Voltolini has reported a case of this nature. Autopsies are rare and the pathological-anatomical lesions are not yet well defined.

Relative to the seat of the affection, one must, as pointed out by Duplay, analyze the different symptoms of Meniere's disease with physiological experiments as a basis. This part of the question has already been treated in the study of vertigo (Flourens, de Golz, etc.).

Etiology—Meniere's disease is primary or secondary. When it is primary or idiopathic it attacks people in good health, even when they have never had aural trouble. The determining causes are a sudden chilling, or on the contrary, sunstroke, of which I have seen two cases.

When the disease is secondary, it is due to the extension to the labyrinth of middle ear disease, syphilis, leucocythemia, traumatism.

Symptomatology—I transcribe here the second paragraph of my father's paper:

A young and robust man, suddenly and without apparent cause, experienced vertigo, nausea and vomiting; a state of inexpressible anguish sapped his strength; his pale and perspiring face announced the near approach of syncope. Often the patient, feeling himself stagger and stunned, falls to the ground without the power to arise. Lying on his back he could not open his eyes without seeing all surrounding objects whirling about; the slightest movement of his head added to his vertigo and his nausea. These accidents had no connection with the state of fullness or emptiness of his stomach; they occurred in the most perfect health; they lasted only a short time; but were of such a character that the physicians summoned believed them due to a cerebral congestion and prescibed accordingly.

But the observing patient was not long in discovering certain phenomena, such as noises in the ears, sometimes very loud, very persistent, and then the hearing became notably weakened on one side, sometimes even in both ears.

By careful, precise questioning of some patients, I have been able to establish that the vertigo, syncope, sudden fall and vomiting had been preceded by noises in the ears, that these noises were apparently without cause, that they persisted in the intervals between attacks, but that they often coincided with the increase of deafness. I believed myself sufficiently authorized to see in these grave phenomena only the symptomatic expression of a lesion of the special apparatus, fully compatible with the preservation of the general health, and in fact, many of these patients after having been a prey to crises of this nature for months and years, have seen them gradually disappear.

Then became evident another order of symptoms: the noises continued with remarkable persistency, the hearing decreased gradually and I have noticed its complete abolition in cases where the ear had never been the seat of pain.

This vertiginous crisis is rarely single. It may be repeated after several days, months or even years. The deafness may be complete or incomplete, and, in the latter case is always quite marked. When the disease is idiopathic, objective examination is absolutely negative. The cranial perception of the diapason is nil or much weakened. Low pitched sounds are perceived better than high ones.

At the Congress of Amsterdam, Guye called attention to a point of interest, "the trembling writing" of sufferers from Meniere's disease, and presented several curious specimens.

Progress and Duration—The progress depends on the intensity of the lesions. The crises are separated by intervals without fixed limits; they may be repeated after several months and even after several years.

The phenomena which disappear the more rapidly, in comparison with the others, are the tendency to

syncope, the nausea and vomiting. But the vertigo continues more or less severe during a very long time, and the patient cannot preserve complete equilibrium. He presents a special typical walk. The recrudescence of the noises is often very pronounced at the very moment that the crisis appears. In his lessons Charcot has insisted strongly on this point.

The deafness varies in intensity; but in certain cases, while being severe, is far from being so pronounced as is claimed. Nevertheless, all varieties are observed in this disease, and each case shows different manifestations.

Termination—When Meniere's disease attacks a person in good health without preceding diatheses, the life of the patient is not usually in danger. The vertigo and the noises may cease after the loss of the hearing. It is not rare, however, to note the persistence of these two symptoms after the loss of this function.

Diagnosis—To differentiate an attack of Meniere's disease from an apoplectic form congestion is easy, because in the latter there exist phenomena of paralysis and a loss of consciousness which are absent in Meniere's. A vertiginous crisis may be caused by a simple obstruction of the tube reacting on the middle ear. At first diagnosis may present some difficulties. The cases of Burkner and of Blau are well known. I have seen two similar cases. I append the most characteristic:

Man; aged 26 years; hotel servant. Two months previously had been seized with vertigo and noises in the ears, vomiting, syncope and falling. These crises took place several times a day; then remissions of eight or ten days. The house physician treated him for a month with quinine. When he came to consult me, I admit that I was at first inclined to diagnose a case of primary Meniere's disease. Examination with a speculum disclosed nothing; but the left tube was closed. I reserved my diagnosis. In fact, after a month's treatment with bougies, the attacks disappeared and the patient remained free from them. In all cases it is necessary to make a complete aural examination.

It is not always easy to establish the difference between true Meniere's disease and the precursor syndrome. The elements of the diagnosis are found not in the syndrome itself, but in the circumstances which accompany it. (Disease of the middle ear, petrous bone, etc.)

Prognosis—The prognosis is always grave. However, idiopathic Meniere's disease may be cured, the hearing remaining fairly good. I have seen some very well defined cases. If deafness is complete, no hope of improvement may be entertained.—*E. M. Meniere: Meniere's Disease, Manual D'Otologie Clinic*, 1895.

Keresion says:

This term may be properly applied only to the condition in which pronounced deafness and the phenomena of vestibular irritation occur suddenly as a result of hemorrhage into the labyrinth. In its true form it is unquestionably one of the rarest of lesions. As a pathological entity it must be remembered that many conditions which we now know to be capable of inducing identically the same clinical phenomena were practically unrecognized until a comparatively recent date.

He also says: "The disease is still more or less wrapped in mystery."

We know that affections of the middle ear or Eustachian tube will at times induce symptoms complex, which have been grouped under the name of Meniere's disease. I well recall one such case which come under my observation some eighteen years ago where there had been two attacks of syncope, vertigo, tinnitus, vomiting and temporary deafness, in which the diagnosis of Meniere's disease was made by a specialist above the average in ability, and yet under proper treatment directed to the auditory apparatus, Eustachian tube, and gastro-intestinal tract, made a complete recovery and has remained so through all these years. Deafness, due to leukemia, syphilis, anemia, lagrippe, and diseases of the central nervous system may all give rise to symptoms as complex as those reported in Meniere's cases. Besides many cases have been reported when bloody exudates were found in which no Meniere's symptoms were noticed during life.

In Meniere's case the profound deafness is unaccounted for, as the cochlea was in a normal condition and the brain was void of pathology. Nor was the cause of death developed. The unknown conditions in this case leave too much for speculation to base a pathology upon. How many of you, with years of experience behind you, have witnessed a death of a young woman on the fifth day following a cold at the time of her catemenia with or without any of the symptoms recorded? This of itself points to a very unusual condition, one which should have challenged the attention of the investigator, and the cause of death if possible ascertained. I regret that I cannot give you the exact report of this case, but the files of the Crerar Library are defective. I take it that the report of Politzer and others examined are accurate.

We often meet cases in which we have manifestations which, from accepted text books' teachings, could be classed as cases of Meniere's disease; a diagnosis, which to an intelligent man causes more or less concern for his future well-

being, and for that reason I would urge more care in the consideration of these cases.

We have seen that we may have a hemorrhage within the labyrinth as shown by post-mortem without one of the symptoms of Meniere's disease, and upon the other hand we may have other cases with Meniere's symptoms clearly due to other causes than hemorrhage into the labyrinth, diseases of the central nervous system, auto-intoxication, due to gastro-intestinal disorders, toxemias, due to specific infections, inherited or acquired, besides many other conditions.

This paper was suggested by the following case: Mr. I., aged 65 years, in August, 1910, set out of doors without anything on his head for an hour. That night he had a sore throat; took four grains of quinine; the next morning had a ringing in his ears, right the worst, which continued. After a month he went to an aurist, who blew out his ears, and treated them twice a day, every other day, for four or five days without apparent benefit. The following May, 1911, the ringing stopped. In the fall he caught a severe cold and his ears began to ring again and they have kept it up ever since. Up to last April, 1915, his health was good, when he came down with lagrippe. Since then the right ear has felt more or less bunged up, at times causing him a little pain. He had vertigo first in 1911, due, he thought, to indigestion, which caused vomiting. In 1912 he had two attacks, due to over exertion; one or two more up to last April, 1915. Since that time he has had occasional attacks, perhaps six, of mild vertigo. The first attack came on while crossing the street, after an animated conversation with a friend. He managed to get to a seat, was helped home, and after a cup or two of warm water vomited and got relief. About half of the paroxyms have been attended with vomiting. Hearing in left ear is good; right not so good. He can hear a watch two inches away. His septum is deflected to the right and in contact with the lateral wall; hypertrophy of the anterior part of each middle turbinate; hypertrophy of left inferior turbinate spur on left side of septum, with chronic sinusitis; catarrhal condition of both tympanum cavities; right Eustachian tube more occluded. Right, watch 2 inches, R.B.O. A 11 — with C 1— C 2 not heard. All others heard. Left, watch 2 inches, L.B. 12 — A 31 C 2. All forks heard. I expected to have made a more complete examination of this patient, but did not have the opportunity, as he was seen in consultation. A Wassermann showed a + 4 in addition to catarrhal conditions noted. A diagnosis of Meniere's disease had been made.

We know that deafness only too frequently follows any kind of syphilitic infection. We also know we have disturbances of equilibrium, nausea, vomiting and noises without deafness. Any of these symptoms should always suggest the possibility of syphilis. Yet, as before stated, any of the infectious diseases, or functional disturbances, may give rise to more or less Meniere's symptoms, which are to be associated with vestibule irritation, regardless of underlying pathology. It is a symptomatic diagnosis due to many etiological factors, and of itself does not furnish a rational therapeutic guide.

I have selected three cases, types of non-suppurative labyrinthine disturbance, only one of which had symptoms at all comparable with the cases cited eighteen years ago, which terminated so favorably. Yet these cases, together with others of their class, who have come under my observation, were doomed from the first accession of the disease to absolute deafness so far as the ears involved were concerned.

In 1902, a woman, aged 32 years, came to my clinic whose history previous to a date of eighteen months before coming under my observation was in good health, and hearing good. On a Sunday evening she had entertained some lady friends at her home, when she took her first and only glass of wine, to which she attributed all her subsequent ills. After their departure she retired, when she thought of an article on her bureau which she desired. She arose and made a step toward the bureau, when she was seized with an attack of vertigo, syncope, and fell to the floor, but did not vomit. With the return of consciousness she was able to get into her bed and slept soundly until morning. She did not feel well, but got up and attended to her duties, but was totally deaf in both ears. She was under my observation at irregular intervals for about a year, in which times there was a progressive mental deterioration. She was put under mixed treatment, not from any other evidence of leutic infection other than the loss of patella reflex, a staggering gate, and other manifestations of ataxia. There was no history of infection or evidence of inherited trouble present. She was still alive in 1907 and her mental condition, I was told, had markedly deteriorated.

I regret I do not know her whereabouts, if alive. I did not, nor did anyone who saw her with me, make a positive diagnosis. Her gate was the staggering gate of a cerebellum disease and without focal symptoms. Her gate had improved somewhat while under observation, yet the mental deterioration was steady and co-ordination lost as soon as eyes were closed.

Oct. 6, 1913, Miss S., aged 26 years. Mother died at the age of 54 of paralysis; father died at the age of 53, supposed assault, as his body was found in the river. There were four children; one died at the age of 25; cause of death, just faded away, having never menstruated; probably tubercular. The other

two look healthy. This patient when nine years of age was nearly blind; interstitial keratitis, for three years. Had her tonsils removed when a little girl, and work done in her nose. Right inferior turbinate removed twelve years ago. Had a suppuration of right ear seven or eight years ago; was treated for a short time, thinks a month, and got well and it has not given her any trouble since. She has had catarrh severely all her life. Until Saturday her left ear was her best ear, the right never was good. While in a department store, where she had gone to make some purchases, she had a buzzing sensation in her left ear. She had three attacks of this kind that day, the last being about 9:00 p. m. She was not unconscious at any time, but felt confused and flustrated; had no vertigo or nausea, but noticed that she could not hear well since. Never had any dizzy spells in her life except a long time ago. Right, watch P.C. B. 5 A. 8 C. 2 and all forks heard. Left, watch O. B.O. A.O. Calorie test, no reaction. She had diseased tonsils which had been cut off, adenoid, synechia on the left between septum and inferior turbinate; right atrophic with a chronic suppurating sinusitis; septum deflected to the left. Condition of hearing today practically the same as at the time of first examination, except there is loss of bone conduction and in spite of putting her throat and nose in good condition, during the winter she has had an acute infection of the sinus again. The patella reflex is normal.

Case 3, April 30, 1915. A female child, aged 10 years, was brought to me on account of sore eyes—interstitial keratitis. Two years before coming under observation she had mumps, and about two months afterwards it was noticed she was deaf in the left ear and has been so ever since. The father gives a specific history and this child and others of the family show the inherited taint. She has chronic sinusitis; tonsils and adenoid have been removed; patella reflex lost; she feels dizzy at times. Right E — B. 5 A B. Left E — B. O. A.O., no reaction to calorie test in left ear. Today the hearing in the right ear is about the same in spite of most approved specific medication and treatment to ear condition. The left is as when first examined.

The first case of the patient 32 years of age, I think, was due to hemorrhage, but whether into each labyrinth as in Meniere's case or central I am not settled, but think it of specific origin. Although specific medication did no perceptible good, the absence of patella reflex, and loss of co-ordination when eyes were closed, her gait was not that of locomotor ataxia.

The second case was, I think, due to hemorrhage into the cochlea, since there was no disturbance of equilibrium and due to a specific inheritance.

The third looks to me more like an 8th nerve deafness, due to mumps, which my records show to be quite a common cause of unilateral deafness of labyrinthine origin.

I embodied the report of E. M. Meniere, taken from his Manuel D'Otologue Clinic, published in 1895, to show how erroneous his concept of the disease named for his illustrious father, when he places a case reported by Politzer due to trauma, showing the Meniere's syndrome as a case of Meniere's disease; also case reported by Politzer where there was loss of consciousness, which Meniere says is not a part of his disease. Also the case he cites as Meniere's syndrome due to Eustachian obstruction, which is almost a parallel case to the one I observed some years ago.

31 N. State St.

ADVANTAGES OF SCIENTIFIC FEEDING IN CERTAIN NERVOUS STATES.*

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I have chosen the subject of scientific feeding because I believe it is a subject that is deserving of careful study; and though I have little that is original to present, I feel sure that we shall be benefited by its discussion. Perhaps the reason we have not accomplished more in this line of investigation is because it is so vast a subject and requires much time, patience and expense to obtain scientific facts that will be of benefit to us in our medical practice.

More than ten years ago Walter B. Cannon of Harvard in studying the physiology of the activity of the stomach opened up new facts which have shed much light upon conditions controlling stomach activity. He mixed bismuth with his food preparations and had for his subject cats whose digestion could be observed by means of the x-ray. From this series of experiments he learned that the presence of a certain quantity of free acid in the stomach was the signal for the opening of the pyloric orifice and that the presence of a certain amount of acid in the bowel which is ordinarily alkaline is the signal for the closure of this orifice. This was a great help in determining why some individuals retain the contents of the stomach much longer than others. It also explains why some foods are discharged much more quickly than others. He could understand why the irritated stomach would discharge its contents under some circumstances before they were prepared for removal from the stomach. To a certain extent it treats its contents as it would a foreign substance. On the

*Read before the Vermilion County Medical Society, March 13, 1916.

contrary, when the stomach is low in hydrochloric acid it will retain its contents often for three days or more. Many individuals eat too fast and the irritation of the stomach caused by improper mastication produces acid formation greatly in excess of the needs of the stomach. This excess of acid frequently produces ulcers in the stomach and in the bowel mucous degeneration with constipation and other ailments.

Ivan Petrovitch Pawlow commenced his investigations in about 1890 and his work in the Institute for experimental medicine has been productive of great advancement. In the Military Academy of Medicine at Petrograd he received the Nobel Prize about 11 years ago. His conclusions reached by experiments upon dogs with various fistulæ were these: that the secretion of gastric juice during the first half of digestion is entirely regulated by the sense of taste and the keenness of the appetite. This would connect the digestive functions of the stomach with that of the mouth very intimately. He prepared his dogs with various surgical contrivances to study the process of digestion. Upon one dog he closed off the esophagus and established a fistula that he might observe the reflex effect of eating when the food did not reach the stomach. Under such conditions the dog would eat ravenously for hours without being satisfied. On the contrary, when he would place the food into the stomach when the dog was asleep by way of the stomach fistula, it would lie there for hours without any apparent digestion. Milk and certain meat juices seemed to be an exception to this rule. Dr. W. S. Sadler states of Pawlow's experiments, that the thought of food or the desire to eat would excite an abundant supply of gastric juice in about four and a half minutes. This juice Pawlow calls appetite juice. It was found only during the first half of the digestive period. The quantity of this juice may be great or small, according as the appetite is good or poor. It differed very materially from the characteristics of the so-called chemical juice. The appetite juice has a standard chemical formula and digestive power. It has the same per cent. of hydrochloric acid. On the contrary, the chemical juice varies constantly according to the nature of the food and the action of the appetite juice. Milk would call forth a mild form of chemical juice and meat and bread would call forth a stronger juice. The conclusions were that appetite equals juice.[1] "Good appetite equals good digestion. Milk produces weak juice, meat a stronger juice and bread produces a juice about three times as strong as the others. Fear, fright, worry and disappointment caused an almost instant suspension of the stomach secretions." Pawlow's work is done and much credit is due him for his contribution to science. Whatever deductions we may make from these experiments no doubt the principle in the main holds good. It is possible, however, that in dogs with a long developed carnivorous appetite, with limited judgment and a keen sense of smell and taste, that these propensities might cause them to vary somewhat from the experience of the human being.

It is of comparatively recent date that Horace Fletcher and others associated with him have encouraged further investigations. Prof. Chittenden and Prof. Fisher of Yale have been led to enter into the scientific aspects of the feeding question and while some criticism has been made of extravagant statements, I believe we may learn much from their investigations. Prof. Fisher states that if we give conscious attention to thorough mastication of the first three mouthfuls of food we can rely upon the power of habit to finish the meal without giving further special attention. Fletcher calls attention to the regular and systematic process of mastication as observed in the lower animals. His conclusions are briefly these: That the food which enters the mouth at one time is divided into two parcels. These morsels travel backward upon the teeth onto the grinders and by the motions of the jaw and the assistance of the tongue and the buccinater muscles are constantly restored to the teeth. The mouth is divided into two parts quite dissimilar in construction and utility. The fauces separate the two parts like curtains, the anterior from the posterior apartment. The food having traveled to the second apartment is returned upon the tongue to the anterior portion of the mouth by the backward and forward motion of the tongue. Thus the bolus of food moves in a set of double semi-circular movements, traveling back upon the double set of teeth and forward upon the tongue until maceration and insalivation are complete. Then without conscious effort the food

1. William Sadler: Science of Living.

in a liquid state slips away between the curtains and swallows itself. This act being an unconscious and a reflex act. It will be readily seen that not all of a mouthful of food will be swallowed at one time. Some parts are more resistant and require further treatment. Comparing this process with the conduct of the stomach under normal activity, a resemblance is observed between the two. Undoubtedly the mouth is a more important organ of digestion than has been generally recognized.

Fisher states that we require for the proper action of the bowel from one ounce to an ounce and a half of cellulose each 24 hours. This, of course, cannot be liquified and must be received in a somewhat different manner.

Regarding the daily ration and the total calories that should be taken in 24 hours there is, of course, some difference of opinion. Careful experiments reveal that the individual often takes two or three times as much protein as the body can properly utilize. Meat proteins are decidedly stimulating to the nervous system. If this food is taken in excess of the body requirements and the sympathetic nervous system is weak and exercising poor control over digestion and elimination, especially of the uric acid output, we can see trouble arising. Fletcher, who is an advocate of the low protein diet, states that he is able to do the work of an athlete upon 60 grams of protein in 24 hours. Prof. Chittenden goes still lower and places his ration at 55 grams per day. The total caloric intake of these men is about 1,500 or 1,600 calories daily. If we give due consideration to the special needs of the neurotic patient, the weakened nerve control, the already disturbed digestion, the faulty elimination, I am sure the standards set by our eastern co-laborers will not be far from correct.

A man weighing in normal health about 165 pounds supports about 19.3 square feet of skin surface. He should take in mild weather about 2,200 calories of food. Dividing this by the Yale standard we have the 2,200 calories divided as follows: Proteins, 10 per cent. or 220; fats, 30 per cent. or 660; carbohydrates, 60 per cent. or 1,320 calories. Gautier, a French authority, places the division as follows: proteins, 10 per cent. or 220; fats, 35 per cent. or 770 calories; carbohydrates, 55 per cent. or 1,210 calories. It may be necessary for a man working at hard labor to take 10 to 25 per cent. more food than this estimate. The temperature will also influence the absolute requirements. It is well for the individual that the stomach acts to quite a degree independent of our assistance, but in some cases it is necessary to give care to the functions of the body, realizing that in many cases the natural instincts and desires are not a safe guide for action.

I present below a sample bill of fare not to stimulate the gustatory functions of the epicure, but to simplify the problem which appears to one unaccustomed to figuring food values quite complex. I have selected a variety of simple foods and figured the food elements of these preparations. In the cereal or coffee the estimate includes milk and sugar. In the corn bread and the butter and the pie I have taken the usual quantities of food dispensed at a serving. The slices of bread are the ordinary size and thickness. Figures do not come out mathematically exact as you will note. I have placed the correct amount that you may see how nearly it approximates the correct standard. The "oz." and "est. cal." are not accurate but grossly estimated.

BALANCED BILL OF FARE

Food	Portion	Oz.	Est. Cal.	Prot.	Fats	Carbo.	Tot.
Breakfast—							
Orange, 1 large		5	100	4.5	2.5	67.5	74.5
Crm. toast 1 slice		3	100	14.1	106.8	63.6	184.5
Bread 2 slices		2	200	18.6	7.4	126.8	152.8
Butter 1 square		1-2	100	.6	113.3	....	113.9
Cereal 1 cup		4	100	2.4	32.8	39.6	74.8
				40.2	262.8	297.5	600.5
Dinner—							
Baked potatoes		2	200	27.2	4.0	231.2	262.4
Brown gravy 2 serv.			50	9.3	27.3	23.4	60.0
Poached eggs		1	100	52.6	83.8	...	136.4
Corn bread 2 sqs..			200	28.3	41.	173.4	242.7
Butter 1 square		1	100	.6	113.3	....	113.9
Custard pie		3	100	14.7	50.4	91.5	156.6
				132.7	319.8	519.5	972.0
Supper—							
Fresh pears, 1 large			100	21.5	6.5	82.5	92.5
Corn flakes, 2 serv.			200	21.6	2.8	182.6	207.
Cream 1-2 glass			100	5.8	98.6	10.6	115.
Graham bread, 1 sl.			100	10.4	4.8	60.8	76.
Butter 1-2 squares			50	.3	56.6	...	56.9
Milk, small glass			100	15.2	44.	23.2	82.4
				56.8	213.3	359.7	629.8
Total for 24 hours				229.7	795.9	1176.7	2202.3
2-20 7-20 11-20				220.23	770.77	1211.21	2202.21

The neurotic individual, while not such an extreme case of perverted habits, requires careful supervision of the feeding habit. We find the whole nervous system is often out of adjust-

ment. In extreme cases we have both a neurosis and a psychosis to deal with. We find every function abnormal and we may safely assume that every gland of the body is in an abnormal state. She cries when there is no special call for tears. She boils over with sentiment when there is no reason for such conduct. She lies awake when she should be asleep. The physical functions are quite as variable as the mental. She has an unreliable appetite. The bowels are irregular and often constipated. Menstruation is usually profuse and often too frequent. The reflexes are exaggerated. There is lack of muscle control which is observed in the ocular reflexes. There is incoordination but no ataxia. A decided lack of confidence is the rule.

I have found that the neurotic patient needs abundant food of the right kind. I believe that we should feed generously and forced feeding according to the Weir Mitchell system has many advocates. Many do better with limited exercise and hearty feeding. Fats especially should be increased. In many cases the food will need to be of a simple sort and may consist largely of milk. The aim must be in dealing with this class to increase nutrition and limit the expenditure of nerve energy. We should limit the expenditure of energy both physical and mental.

The neurasthenic patient is representative of a class which frequently presents many difficulties in nutrition as well as elimination. There is frequently observed an excess of calcium phosphate and calcium carbonates in the urine of the neurasthenic. We should feed them with such foods as will contain abundant lime constituents. Tibbles states that milk is valuable for this class of patients, because of its richness in lime and lipoids. The whole wheat foods are valuable for their content of lime. Germ bread and whole meal bread are more stimulating and promote greater cellular activity. Lecithin is an important element in nerve tissues. We cannot, however, always rely upon foods containing lecithin. Yolks of eggs, brains of sheep and similar foods are considered valuable, but the lecithin may be decomposed in the bowel and produce toxic symptoms. I believe that the yolks of eggs boiled hard or otherwise is a valuable resource for lecithin. Eggs contain, according to Bertrand of Paris, arsenic varying from .0005 to .005 milligrams in each egg. This would seem to be a valuable food, both for anemia and nerve degeneration. "It has been demonstrated that it is very difficult for the nerve tissues to assimilate inorganic phosphorus, but lecithin and its compounds bring to the nerve cells highly phosphorized organic substances ready to be built up into the complex molecules of nuclein. Maize contains more lecithin than most other vegetable foods. Milk also contains lecithin. Tibbles suggests that lecithin is probably decomposed in the bowel into cholin, neurin and glycerophosphoric acid then resynthetized by the absorbing cells into lecithin. Peas, beans and carrots seem to be beneficial for the nervous individual.

The next nervous state that I wish to speak of is exophthalmic goiter. I am sure we have all been perplexed many times to know how to deal with some of the features of these cases. It is quite common to see a simple hypertrophy in young people, especially girls, and this is no doubt a protective rather than a pathologic process. But the individuals with weak nerves are often the ones that are afflicted and any slight enlargement gives the patient much apprehension.

Much yet remains to be learned regarding the function of the thyroid and of its behavior to the other related glands. Since the discovery of the internal secretions, hormones and cellular enzymes, the importance of these organs assumes its proper place. It has been observed by Eppinger, Ruddinger and Falta of Berlin that there is an interrelation between the thyroid and the pancreas and the adrenals. While in a late journal this position has been disputed, these investigators discovered that there is a mutual inhibition between the thyroid and the pancreas: that there is a mutual stimulation between the thyroid and the adrenals and that the extirpation of one gland leads to the hyper-functionation or hypo-functionation, according to the effect of the removed gland upon the one acting. For instance, removal of the pancreas results in hyperglycemia and glycosuria; hyperthyroidism and increased metabolism of proteins, fats and carbohydrates. The effect of the removal on the adrenals is excessive mobilization of the carbohydrates, the metabolism of the carbohydrates

being hindered by the loss of the internal secretion of the pancreas.

"The thyroid gland seems to influence carbohydrate metabolism through its influence over the pancreas, and protein metabolism is thought also to be controlled by the influence of the thyroid on the liver and calcium metabolism through the parathyroids."[2]

Tibbles states that oatmeal and liver stimulate the thyroid very strongly; that animal foods in general moderately stimulate and that milk, eggs, bread and butter only slightly stimulate this organ. This shows the line of action in controlling the dietary. Tea and coffee, owing to their effect upon the heart and sympathetic nervous system, should be used with the strictest moderation or not at all. Tobacco and alcoholic drinks should be forbidden.

Whatever diet seems to be indicated, rest in bed seems to be necessary. If it is a condition of moderate hyperactivity, the rest may not be absolute, but in severe cases rest should be enforced.

It has been suggested that it would be well to use the milk from thyroidectomized animals and Gobel says that such milk does not contain iodine, because the organ which excretes it has been removed. It may be necessary to restrict the use of foods containing much iodine. French peas, beans, beets, radishes and turnips contain from .14 to .32 milligrams of iodine per kgm., while potatoes, parsley and carrots contain none. Fish such as the cod, the oyster and salmon, from 1.2 to 1.4 of iodine per kgm.

I come now to a very interesting nervous condition, viz.: polyneuritis or beri-beri. There seems to be a similarity between the conditions of the nervous system in these last two diseases. The tachycardia, the tremors and the sympathetic disturbances in the last named disease, together with the fact of the relation of the thyroid with the other digestive organs seem to present a marked similarity. In the far eastern countries it has been found that the subjects of the disease known as beri-beri were restored if they were fed upon unpolished rice instead of the rice of commerce which has the pericarp removed. This fact has led to a study of the chemical elements which seem so absolutely necessary to the welfare of the body and especially the nervous system. This chemical substance is named vitamines. A large amount of time and effort has been devoted to the study of this peculiar substance. I can only touch upon the subject briefly and give their conclusions as far as the experiments have been made conclusive.

Vitamines are chemical non-protein organic substances which may be easily destroyed by a certain amount of heat, which varies with each peculiar vitamine. Vitamines have different characteristics as they exist in different foods. Their chemical nature is not known but they are derivatives from nuclein and nucleic acids. Schaumann isolated from rice bran a certain substance which contains nitrogen, but no phosphorus, and he believes that these substances are *activators* or hormones which produce changes in the organic constituents of the nerves. The proportion in rice is very small. It exists in about 1 to 100,000 or about 1 gram per kgm.[2] "It is an organic base precipitated by phosphotungstic acid, silver nitrate and barium hydroxide. It has for its formula $C_{17}H_{20}N_2O_7$. It is soluble in water and acidulated alcohol and destroyed by a temperature of 120 degrees C. This refers to the vitamine found in beri-beri." Other vitamines are destroyed by a temperature of 110 and others will withstand boiling for an hour. Milk vitamines are necessary for growth and are destroyed by boiling and by the use of hydrogen peroxide as a preservative. They differ from the beri-beri vitamine. Andrews says that one-half of the mortality of Manila occurs in infants under one year; and half of the infants who die show signs of beri-beri. Manila infants fed by a healthy mother or with fresh cow's milk do not develop beri-beri. The disease is also cured by feeding the infants with fresh cow's milk or other substances containing vitamines. These facts are worthy of our thoughtful consideration. Groups of young rats were fed upon a basal diet of casein, fat and carbohydrates and salts. The rats soon ceased to grow. When a small quantity of fresh milk was given they grew normally. Prof. Leonard Hill says "Foods contain a number of vitamines and white bread does not contain them. In the milling process the outer layers of the wheat-berry are removed and the vitamines taken away."

2. William Tibbles: Dietetics or Food in Health and Disease.

1. Sadler, William: Science of Living.

There are some principles that apply to vegetables that I wish to mention in connection with the consideration of scurvy. This disease seems to be due to a deficiency of chemical elements and also to a lack of freshness of those foods, or a monotonous diet of dried meat or canned meat, vegetables and bread. It has been observed that there is nothing like fresh meat, onions and vegetables for curing it.[2] "It seems there is a common basis of dietetic error in the causation of scurvy, rickets, beri-beri and Barlow's disease."

Regarding the matter of the freshness of foods, Tibbles states that while vegetables and meat are fresh their salts are dissociated or ionized. These ions are important for metabolic purposes. Holst found that animals fed on rye, barley, oats or flour of wheat developed symptoms like human scurvy and die in a few weeks. The addition of fresh foods and especially vegetables, fresh potatoes, apples, carrots, dandelion leaves and lime juice would be protective. However, these latter foods lost their power to protect when they were dried, processed or autoclaved. Infantile scurvy is identical with scurvy and is due to the use of boiled, condensed or sterilized milk. Milk heated to 70 degrees C., the temperature for pasteurization, did not cause scurvy in guinea pigs. If it was heated to 98 degrees C. for ten minutes it lost its protecting power and the bones developed a high degree of fragility characteristic of scurvy. The scurvy vitamine could not be detected in a commercial sample of dried milk. The amount of this vital principle depends upon the amount in the cow's food.

I will make a few statements regarding foods which are considered staple foods and select two or three as types of others. Meat vitamine, as may be expected, is found more abundant in fresh meat than in any form of prepared meat. Its vitamines are destroyed at 120 degrees C. Meat roasts, in which internal temperature rarely reaches more than 60 degrees C., may escape the destructive process. Meat extracts which are quite generally discarded seem to retain the vitamines if prepared at a low temperature. Dried and canned meats are deficient as has been previously mentioned.

Regarding potatoes,[2] "Effront found a non-protein nitrogenous substance which stimulated enzyme action and cell growth." Potatoes seem to be very useful for growing yeast and this is explained in the same manner. Potatoes seem to possess more of this substance when cooked with the skins on. Drying the potatoes destroyed the vitamines. But fresh potatoes contain a proportion of a non-protein nitrogenous substance possessing the power of activation. Cabbage loses its protective power at 120 degrees C., and cabbage juice was destroyed at 70 degrees C., or if kept for several months.

I wish in this connection to speak of the possibility of pellagra coming into this class of deficiency diseases. Pellagra seems to be a disease which has been complicated by many problems. Some hold to the corn feed theory. Yet some children have pellagra who have not eaten corn for two years. The disease seems to be a growing disease. It is spreading into territory where corn is not used to great excess. Some physicians find that corn ground with the whole meal coarsely is even curative. These facts seem to show that it is not simply corn meal or spoiled corn that produces pellagra. Neither does any system seem to clear all the uncertainties in this serious disease.

Evidence seems to be growing that at least foods deficient in vitamines enter into the etiology of this disease. Clinically we find that we have a close analogy between this disease and other deficiency diseases. We have not only extremely nervous but psychic symptoms in pellagra. Babcock thinks that the disease may be due to a monotonous diet of any sort, especially that used in charity institutions. In the dietetic treatment of this disease all that seems to be necessary is a well-balanced mixed diet, using the ordinary fresh foods. One or two theories may be worthy of mention in passing. It seems that some proteins, notably the zein of corn, are deficient in certain amidoacids. Three especially may be mentioned, viz.: glycocoll, lysin and tryptophane. This last element is important and is found in hemoglobin in serum albumin, serum globulin and edestin. The fact that when the pellagrin is fed with a mixed diet of meat proteins and other fresh foods he improves rapidly would seem to favor the deficiency theory.

During the year 1915 the U. S. Public Health

2. Tibbles, William: Dietetics, or Food in Health and Disease.

Service secured the services of 12 criminals who were promised pardon on conditions that they would submit to the test of experimental pellagra. The test extended over a period from February 15 to November 1, 1915. The results were highly satisfactory and demonstrated that pellagra can be produced in a healthy individual. The diet which produced this disease was a one-sided diet consisting of a deficiency of proteins and an excess of carbohydrates. The abundant lipoids found in corn may play an important part. They seem to be intimately connected with cell absorption. It is thought that only substances dissolvable in lipoidal material is taken up by the cell. This point requires further demonstration.

In conclusion I wish to say that if we could have the human animal in a perfectly natural state with the nervous system perfectly balanced, we might trust to the factors of desire and personal need and individual capacity. The consumptive, as a rule, abhors fats of all kinds and yet it is my judgment as essential to increase largely the intake of fats in such cases as to have abundant fresh air. I believe we must employ scientific aids in the correction of the natural perversities of human nature. The stomach has been styled the abdominal brain and it will never come into perfect adjustment until the psychic control is regulated by natural customs, natural tastes and the effects of corrected habits.

Undoubtedly the use of prepared foods such as canned meats, canned vegetables and condensed milk have much to do with producing disturbances of nutrition. Then the modern milling process is, I believe, responsible for much of the deficiency diseases. Milk for children should come from animals fed with natural and health-producing foods. The pasteurization would seem to conserve the elements of growth and nutrition. The fireless cooker would, for similar reasons, be beneficial for prolonged cooking at a low temperature.

I believe our slogan should be "Back to Nature," in the matter of foods. Back to Nature in the use of fresh air and simple life and back to Nature in giving the body and mind at least 8 hours of rest each night.

NOTE.—Several indirect quotations and other data are gathered from Dietetics above referred to and acknowledgement is hereby rendered.

THE BACTERIOLOGY OF PNEUMONIA.*

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"Pneumonia," while generally understood to refer to the lobar form of the disease particularly designated as croupous pneumonia, is a vague term comprehending a number of quite dissimilar inflammatory conditions of the lungs. This being true, no single organism can be "specific" for all. Indeed, pneumonia must be conceived of as a group of diseases and the various micro-organisms associated with it must be separately considered in connection with the particular varieties of the disease in which they occur.

About ninety per cent. of all cases of lobar pneumonia are due to the pneumococcus, the remainder to the Streptococcus pyogenes, Bacillus influenzæ, Friedländer's pneumo bacillus, and exceptionally to other bacteria, as B. coli, B. typhosus, B. diphtheriæ, etc. However, certain observers contend that the pneumococcus is the *sole* cause of *lobar* pneumonia and that these other organisms have never been satisfactorily demonstrated to be other than secondary invaders. In the primary lobular type the pneumococcus is nearly always present and in a large proportion is found alone or associated with streptococci or staphylococci. The secondary cases of the lobular type may be caused by a variety of organisms,—Streptococcus pyogenes, Staphylococcus pyogenes, Bacillus pneumoniæ, B. influenzæ, B. pestis, B. diphtheriæ, B. typhosus, B. coli, B. tuberculosis, usually associated with the pneumococcus, or by the pneumococcus alone.

Historical.—Diplococcus of pneumonia, pneumococcus, Streptococcus pneumoniæ, Micrococcus lanceolatus, diplococcus of Fränkel and of Weichselbaum are synonyms for the bacterium which was almost simultaneously observed by Sternberg and Pasteur in 1880, in the blood of rabbits inoculated with human saliva. It is, however, to Telamon, Fränkel, and particularly to Weichselbaum, that we are indebted for the discovery of the relation which the micro-organism bears to pneumonia.

The identity of the pneumococcus as a separate entity has been questioned by Rosenow in his re-

*Read before the Englewood Branch, Chicago Medical Society, Feb. 1, 1916.

port that he has transmitted typical pneumococci into typical hemolytic streptococci. More recent work, however, to be considered later, points strongly to the permanence of the pneumococcus.

Morphology.—The form and arrangement of the pneumococcus varies with the culture media used. In the fibrinous exudates from the rusty sputum and in the blood of susceptible animals containing them the organisms occur in pairs, have a lanceolate shape with the pointed end as a rule turned outward, and a distinct capsule. When grown in fluid media longer or shorter chains are frequent, which are difficult to distinguish from certain streptococci except that the chains are usually shorter and the pairs are farther apart. In cultures the individual cells are oval or almost spherical in shape, and except in certain strains and in certain media such as milk, the capsule is less evident or altogether wanting.

The coccus measures about 1 micron in its longest diameter, is non-motile, has no flagella and forms no spores. It stains readily by the ordinary anilin colors and is not decolorized by Gram's. The capsule may be demonstrated in blood or sputum by Gram's or Welch's methods (glacial acetic acid), by the copper sulphate method of Hiss, or by Rosenow's new method.

Cultivation.—The organism, being more parasitic than many other bacteria, presents greater difficulties in its cultivation. On the ordinary media the growth is scanty and some strains do not grow at all; blood in some form is most useful. The presence of glucose or glycerin favors the growth, but the acid formed is injurious to their vitality. Blood agar, blood serum or nutrient agar streaked with human or rabbit's blood are good media. On rabbit blood agar the pneumococcus grows luxuriantly and forms in four to five days, thick green to black surface colonies, not unlike sun blisters on red paint, thus distinguished from the hemolyzing colonies of most streptococci.

To differentiate from streptococci, Hiss devised a medium of beef serum, 1 part, and distilled water, 2 parts, to which 1 per cent. inulin is added and enough litmus to render the medium a clear transparent blue. The pneumococcus ferments inulin, turning the litmus indicator red, and causes coagulation.

Isolation.—For isolation from mixed cultures or from material containing other species, such as sputum, a reliable method is to make surface smears upon plates of glucose serum-agar. According to the number of bacteria present in the infected material, it may be smeared directly upon the plates or diluted with sterile salt solution before planting. Another method is to inoculate white mice and after their death to make smears on glucose-agar with the heart's blood.

Oxygen and Temperature Relations.—Aerobic and anaerobic conditions are equally favorable for the cultivation of pneumococci. Growth takes place most regularly at a temperature of 37.5° C., usually not at all below 25° C., not above 41° C.

Resistance.—In sputum the viability of the pneumococcus seems to far exceed that observed upon artificial media. Studies have shown that, slowly dried in sputum and protected from light, the organism may remain alive and virulent one to four months, or as long as nineteen days when exposed to diffuse light at room temperature. Wood's studies upon the organism in finely divided sputum,—in a condition, in other words, in which inhalation transmission would be possible—have shown that it survives for only about one and a half hours under ordinary conditions of light and temperature. Exposed to strong light, pneumococci die within an hour, often within a few minutes.

Low temperatures are well borne, a temperature slightly above zero being even conducive to the prolongation of life and virulence. The organism is destroyed in ten minutes by 52° C. and is highly sensitive to disinfectants, weak solutions quickly killing. Wadsworth concludes that in exudates the organism is most rapidly destroyed by 20 per cent. alcohol, other stronger disinfectants being less efficient, probably because of slighter powers of penetration.

PRODUCTS OF GROWTH.

Chemical.—The pneumococcus produces acids with ease from monosaccharides, disaccharides—as dextrin, glycogen, starch and inulin. Milk is acidified and coagulated; gelatin is not liquefied.

Toxins.—Our knowledge of pneumococcus poisons is still very imperfect. In culture media outside the animal body the production of an extracellular toxin does not occur. It is generally held that the results of a pneumococcus infection are due to an endotoxin:—by Neufeld and Dold and by Rosenow and others, that in the animal body, by the action of certain substances in the

serum, the bodies of the bacteria are partly digested and the digestion products of the proteins of the dead bacteria, or so-called split products, are poisonous. Cole, on the other hand, believes that by experiment he has shown that the toxin substance is contained within the bacterial cells and is set free whenever the bacterial structure is injured. In support of this, Jobling has lately ascertained by chemical analysis that no evidence of the splitting of the bacterial protein can be obtained after bacteria are allowed to undergo lysis in salt solution.

The above facts, however, according to Cole, do not exclude the possibility that the pneumococcus may produce an extracellular poison when growing within the body, and that to this poison pathological and functional changes are due. The greenish tint of the pneumococcus colony on blood agar and the similar, though less pronounced, change in the blood of animals severely ill and dying of acute pneumonic septicemia, and to a still less extent, in the blood of patients severely ill and dying of pneumonia, is evidently due to the transformation of oxyhemoglobin into methemoglobin. This led Cole to conjecture that this change might be due to the action of the intact pneumococcus cell.

From experimentation along this line, he advances the hypothesis that the formation of methemoglobin occurs in the neighborhood of living pneumococci because of a modification of oxidation and reduction processes in the medium immediately surrounding the bacterial cells; that the change must be a specific one in the case of the pneumococcus, otherwise all living microorganisms would cause this reaction.

PATHOGENESIS.

Types of Natural Infection.—The pneumococcus is not infrequently found in diseased conditions other than pneumonia; meningitis, pleuritis, peritonitis, pericarditis, acute abscesses, suppurative tonsillitis, conjunctivitis, otitis media and arthritis. The pneumococcus is present in the blood of practically all cases of lobar pneumonia. It was at one time supposed that the finding of the organisms in the blood was of ominous significance, but as a result of later researches this view is no longer tenable. The pneumococci present in the mouths of about 80 per cent. of healthy individuals are more likely to be atypical than those found in pneumonia, and, judging from animal experiments, are, as a rule, less virulent.

Experimental Evidence of Pathogenesis.—If a small quantity of a pure culture of a virulent organism be introduced into a mouse, rabbit or guinea-pig, the animal dies in one or two days. Exactly the same result can be obtained by the introduction of a piece of lung tissue from croupous pneumonia, by the introduction of rusty sputum, and frequently by the introduction of human saliva. The disease in these animals is a bacteremia unassociated with conspicuous tissue changes.

To Lamar and Meltzer we owe the final proof that true pulmonary consolidation can be produced experimentally by cultures of the pneumococcus. By insufflating 5-6 cc. of a broth culture into the lungs of dogs they produced typical consolidation and lobar distribution in 42 successive cases. With streptococci the findings were of the lobular type.

Mechanism of Disease Production.—It is sometimes held that lobar pneumonia is caused by bacteria that are inhaled and make their way directly to the alveoli of the lungs, while lobular, on the other hand, is supposed to be due to the aspiration of bacteria that are present in the bronchial exudate, or it may arise from a general extension of a bronchitis into the alveoli. Meltzer offers the most satisfactory explanation of lobar pneumonia: That as a result of the exudation many bronchioles become occluded; the occlusion converts the lumina of those bronchioles with their alveoli into tiny cavities. In such cavities the pneumococci develop and produce irritating substances which in time bring about more or less inflammation of the lung tissues. His results justify the conception that pneumonia in man may not after all be from the start a matter purely and simply of the invasion of the lung by pneumococci, but rather that for such an invasion to be followed by the characteristic lesion of the disease there must first exist physiological conditions favorable to the massed or circumscribed development of the organisms.

IMMUNITY AND IMMUNIZATION.

An attack of pneumonia in man is probably followed by some increase in resisting power, but such acquired immunity is far from perma-

nent. One attack may succeed another after a short interval; in some cases predisposition to fresh attacks seems to be increased.

Many immunological studies have been made by various investigators, but the results for some reason have not been consistent. Much has been added to our knowledge by the work of Cole and his associates on the classification of pneumococci. These investigators have shown that while it is true that a large majority of lobar cases are due to pneumococci, so far as biologic reactions are concerned these cases are caused by at least four different types,—in other words, pneumococci isolated from cases of lobar pneumonia belong to one of four distinct types, each of which manifests specific immune reactions. It was found by protection experiments that the immunization of animals is strictly limited to the particular type of pneumococcus used in immunizing. They also found that agglutination reactions correspond with these protection reactions.

The first two groups are made up of organisms closely related immunologically to the others of their respective groups. Group 3 consists of Pneumococcus or Streptococcus mucosus. Whether or not differences exist between individual members of this group is not yet fully known. Group 4 embraces a number of distinct members which manifest all the cultural and common characteristics of pneumococci, but do not seem to be related to each other so far as can be demonstrated by specific biological reactions; this is known as the Heterogeneous Group.

The relative frequency of these types seems to be as follows: Group 1, 2, 4, 3, and as regards severity, 3, 2, 1, 4.

By inoculating horses with living cultures they have produced immune sera for types 1 and 2, which promise to be of value. The direct practical importance of these studies is very evident in prognosis and treatment. Unless the curative serum or vaccine employed in any case is homologous with the pneumococcus causing the infection it will have no therapeutic value; if, on the other hand, it is homologous, its therapeutic value may be very great.

BACTERIOLOGICAL DIAGNOSIS.

For the bacteriological diagnosis of pneumococci, four means are available:

1. The blood culture.
2. The lung puncture.
3. The inoculation of susceptible animals with the expectoration.
4. The cultivation of the organism from expectoration.

In addition to this, the work of Cole and his associates strongly suggests the advisability of classifying the pneumococcus according to type. This can be done in twenty-four hours.

DISSEMINATION.

Pneumonia is undoubtedly a transmissible disease. Exactly how infection takes place is not known, but in view of the fact that the infectious agent is in the respiratory tract, from which it is easily discharged into the atmosphere during coughing, etc., and the facility with which it can be inhaled by those near by, it seems justifiable to conclude that the primary entrance of the organism into the body is through the respiratory tract. Indirectly the infection is spread through drinking cups, thermometers, handkerchiefs, and other objects contaminated with the fresh discharges.

PROPHYLAXIS.

Sanitarians advocate that cases be isolated and made reportable; the discharges from the nose and throat burned or disinfected. There is no specific prophylaxis for pneumonia. Prevention consists in avoiding infection, maintaining the general health at a high level, thereby conserving the defensive mechanism of the body, care and cleanliness of the upper respiratory passages, avoidance of exposure, ill-ventilated rooms and dusty atmospheres.

As carriers doubtless play an important role in disseminating this infection, the education of the public concerning sanitary habits should be actively continued.

INDICATIONS FOR THE REMOVAL OF TONSILS.*

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The present pronounced tendency is toward conservatism in dealing with the tonsils. The literature emanating from specialists is more pronounced in this than that of the general practi-

*Read before the Englewood Branch, Chicago Medical Society, Jan. 4, 1916.

tioner who today is perhaps the most enthusiastic tonsillectomist.

A great deal has been written within the last few years regarding the function of the tonsil. It seems well established that the tonsil is not—as we consider, the appendix—a vestigial organ. Many feel that the tonsil has an important function in relation to immunity, and that the free cells passing through the epithelium are important in engaging ingested bacteria. Wright, Goodale and others have come to the conclusion that "bacteria attacking healthy tonsils do not permeate the epithelium." The hypothesis offered is that the destruction is accomplished through a biochemical action, the epithelium throwing out an antagonistic ferment which overcomes the organism, and if the tone of the epithelium is normal there is, as Ballinger puts it, "an equilibrium between immunity and infection. When the cellular tonicity is impaired, the equilibrium between immunity and infection is lost and infection occurs."

Before advising the removal of a tonsil we should remember: the definite relation of the tonsil to the voice and that in its removal we substitute a cavity whose base is a scar covered with non-mucus-secreting epithelium; the interference with the delicate neuro-muscular adjustments of the throat; and the marked changes in the lymphatic system, or in other words, that the removal of tonsils is a far more radical procedure and the conditions resulting therefrom are more important than those from many so-called major operations. However, we should also remember that the results obtained from the *proper* removal of *properly* selected cases are so brilliant that even the most conservative might be said to be enthusiastic, and that the work of Rosenau and others has condemned many a tonsil that might otherwise be hiding securely between the faucial pillars. We must, therefore, come to the conclusion that each tonsil should be carefully examined and remember that the gain is not without some loss.

The following outline will show in a concrete form some of the indications for a tonsil removal. The differentiation between children and adults is made as the physiological function is more important in children, while in adults the question is more mechanical.

INDICATIONS FOR THE REMOVAL OF TONSILS.

Indications.

1. CHILDREN UNDER FIFTEEN.

Acute.
- Repeated tonsillitis.
- Repeated peritonsillitis.
- Inflammatory conditions involving ears.
- Acute rheumatism, especially when recurrent.
- Nephritis following tonsillitis.
- Chorea.
- Endocarditis.
- Suppurative adenitis.
- Acute obstruction.
- Middle ear disease, with obstruction of Eustachian tubes.

Chronic.
- Large protruding tonsils, with constant effort to swallow.
- Chronic throat cough.
- Chronic local inflammation.
- Marked adenitis.
- Degenerated tonsils, with pus pockets.
- Muffling voice.
- General lowered resistance.
- When associated with adenoids and improper evolution of jaw during second dentition.
- Tubercular.

2. ADULTS.

Acute.
- Repeated tonsillitis and peritonsillitis.
- Obstruction to speech or breathing.
- Rheumatism acute and chronic.
- Focal infections.
- Nephritis, especially following tonsillitis.

Chronic.
- Chronic pharyngitis, with crypts of tonsils showing much detritus.
- General lowered resistance, with doubtful etiology.

Contraindications.

1. CHILDREN.

- Acute febrile conditions.
- Recent infections.
- Probable inability to withstand shock.
- Bleeders.
- General contraindications for an anesthetic or local anesthesia.

2. ADULTS.

- Same as in children.
- Singers.

The question is not, as the layman thinks, how large the tonsil may be, but is the tonsil in a physiological or pathological state. If pathological, how extensive, and is the entire tonsil involved? Some advocate if only a few crypts are involved, to open them freely with a knife or cautery to secure good drainage. This is admittedly very difficult in children unless they are anesthetized, but the principle is right and the shock is much less than in tonsillectomy.

Dividing the tonsils into large free and large buried, small free and small buried, it is found that the buried tonsil, large or small, is more often the seat of chronic infection than the large fibrous type.

In children, particularly, one tonsil may be the seat of trouble while the other may still be quite normal. In these cases only the diseased organ should be removed. For, as Makuen says: "I am one of those who take it for granted that the faucial tonsil has important bactericidal and protective systemic functions, and I am convinced beyond doubt that in its normal state, at least, it has some very important mechanical

functions which are particularly operative in the production of voice and speech."

Pioneer work in showing the tonsil to be the seat of many so-called focal infections has been done by Rosenow, who gave us a most instructive evening in presenting his work in person at one of our last year's meetings. Much work has been done, with some failures, but many more brilliant results. We have all seen marked constitutional changes, both in children and adults, following the removal of tonsils even when there were no noticeable symptoms pointing to the tonsil as the seat of infection. The vaccines made from the tonsil have the advantage of being autogenous, with all the advantages this name implies. Age should not be a contraindication for removing a diseased tonsil. Chronicity of arthritis or extent of deformaties should not deprive a patient of the only hope of a cure or the checking of otherwise progressive conditions.

The contraindications to the removal of diseased tonsils are not many, but are nevertheless important. Under ordinary circumstances febrile conditions, recent infections, probable inability to withstand the shock, bleeders, and general contraindications for an anesthetic or local anesthesia may be mentioned.

The question of tonsillotomy vs. tonsillectomy is intentionally not touched upon. I personally feel that this might be discussed from two distinct standpoints, as: theoretically or concrete; specialist or the man who is to have the pleasure, or who anticipates the pleasure of seeing the patient for some time after the operation.

We often have great difficulty in securing consent for the operation in urgent cases. If a second operation or repeated treatments are required after an operation is performed, a large majority of these cases are neglected because "it didn't do any good." I believe, therefore, before trying to apply any given rule or possibly theoretical consideration, we must first study our case objectively and sociologically as well.

Conclusion: Diseased tonsils should be removed, but all factors should be as carefully weighed as in major operations; considering shock, more or less interference with the delicate neuromuscular adjustments and scar tissue, as well as the probable physiological function in children, each tonsil should be given a careful, individual examination.

Many tonsils will respond to local treatment if the involvement is but slight and proper drainage is established. Diseased tonsils, whether large or small, should be removed in all cases if the conservative treatment fails. Removing the tonsil and making vaccines from the contained bacteria in such diseases as rheumatism, endocarditis, arthritis, some cases of nephritis and neuralgias, is a duty when other treatment fails.

DIAGNOSIS AND ELIMINATION OF CHRONIC FOCAL INFECTIONS ASSOCIATED WITH TEETH.*

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One finds in dental and medical literature during the last twenty-five years the frequent appearance of articles containing the statement that there is a close relationship existing between some chronic oral infections and certain systemic diseases. However, it was not until the appearance of articles by such noted physicians as Drs. Poynton, Payne, Lambert, Hunter, Kenneth Goadby of Europe, Frank Billings, Wilbur E. Post, D. J. Davis, E. C. Rosenow, J. B. Murphy and Charles Mayo of America, that the more progressive members of our profession realized the seriousness of the relation that exists between chronic focal infections and such systemic diseases as chronic arthritis, neuritis, nephritis, the cardiovascular degenerations, neurasthenia, iritis and myalgia.

Personally, I accept the teachings of these men upon the systemic effect of chronic focal infections and oral sepsis as being beyond scientific dispute. The full significance of the relation of chronic focal infections to serious disease has been made more plain by the recent contribution of Rosenow on the "Elective Localization of Streptococci," in which he points out if the specific strains are taken from the human suffering, for example, from appendicitis, ulcers of the stomach and duodenum, cholecystitis, epidemic parotitis, myositis and endocarditis and introduced into animals, the animals become infected with appendicitis in 80 per cent. of the cases; ulcers of the stomach, 60 per cent.; cholecystitis, 80 per cent.; rheumatic joints, 66 per cent.; myositis, 75 per cent., and mumps, 73 per cent.

*Read before the Chicago Medical Society, April 12, 1916.

With the evidence before us that the streptococcus is the predominating factor in the production of the foregoing serious diseases; secondly, because of the established evidence presented by Drs. Gilmer and Moody, Hartzell and his associates, that the streptococci are also the predominating bacteria in chronic infections associated with teeth, and thirdly, because of the sole dependence by many upon radiograms for diagnosis of infected areas, normal dental structures are so frequently being sacrificed, it has become essential that additional evidence be secured to ascertain if a suspected tissue is the seat of a chronic infection before surgical interference is instituted or teeth extracted. The last statement was made because I know of many instances where operations have been suggested and performed about the mouth and jaws to remove supposed chronic infected tissue that did not exist. Whether similar mistakes in diagnosis have terminated with the needless removal of tonsils and other tissues which are frequently the seat of chronic focal infections I leave to the general practitioner and other specialists to affirm.

Having declared my faith in the doctrine that chronic focal infections may be the cause of many serious chronic systemic diseases, let us now pass to a consideration of the diagnosis and determination of elimination of chronic focal infections occurring in the soft tissues, bone and alveolar process forming the jaws. In my opinion, next to the faucial tonsils, the infected bone cavities found about the root ends of pulpless teeth having no discharging sinuses are the most frequent cause of the spoken of chronic diseases. In 1913 I began the undertaking of ascertaining the usual blood findings in consecutive cases of chronic oral infection to determine if valuable information could be collected which would be of benefit in reaching a decision that a chronic oral infection, though producing little or no discomfort, was in reality sufficiently active to produce characteristic blood changes which would be of diagnostic aid in deciding in favor of treating the infected foci with retention of the teeth or demanding extraction and possibly curettement of the area. Furthermore, I wished to determine if I could gain additional knowledge that would inform me when all infected areas were removed and the tract not reinfected during the healing process with the end result of the wound healing apparently normally and leaving an infected tract similar to the one that acted as the initial etiological factor. Before discussing the case records, I desire to call attention to the fact that they were all of patients presenting at my office and should not be compared with those secured from individuals confined to the hospital from ill health. (These examinations were never made after the patient had partaken of a heavy meal and were all made by one person.)

I herewith report on the blood findings of the first 162 out of my 272 consecutive cases of chronic oral infection associated with teeth, of which 110 are advanced pyorrhea cases where the clinical evidence of pus was present and in 96 per cent of the cases some teeth had been lost or were so seriously involved with the disease that extraction was demanded. The remaining 52 cases are of patients having chronic periapical infection without evacuating sinuses; however, 18 cases had pyorrhea co-existing. For the convenience of study I have divided them into groups which can best be illustrated with stereopticon slides that also show the hemanalysis of typical cases.

DISCUSSION OF CASES SHOWING BLOOD FINDINGS AND CHANGES.

1. In the examination as here made, I found in 100 of 162 cases that blood changes had occurred that were held to be the sequence of chronic oral infection associated with teeth.

2. That neither pronounced nor moderate anemia were commonly associated with chronic oral infection in this series, as claimed by many authors, as pronounced anemia was found but once.

3. That leucopenia was more constant than leucocytosis in pyorrhea cases where the blood findings were abnormal; furthermore, leucopenia was more frequent in those cases where the pyorrhea pockets did not involve the root ends and in the absence of periapical focal infection without discharging sinuses.

4. That leucocytosis when associated with pyorrhea was most frequent where the pyorrhea pockets extended nearly to or did involve the root ends.

5. That abnormal blood findings were present in only forty-eight of the one hundred and ten pyorrhea cases examined.

6. That leucocytosis was present in forty-seven of the first fifty-two cases of periapical infections without discharging sinuses—but that leucopenia does occur under the same conditions and was twice present in this series. Let the foregoing statement be not misconstrued to mean that either leucocytosis or leucopenia is always present when a periapical infection without a discharging sinus is found,—we have cases of chronic infection at root ends where the blood findings were normal, if such evidence is needed, for naturally periods arise when the effect of the pathogenic bacteria and toxins is so slight that no blood change is manifested. But, since severe secondary infections could occur during this period, a focal infection though producing no characteristic blood change must always be looked upon as a menace to the health of the patient and its eradication demanded.

Almost universally the patient was unaware of any discomfort about the tooth having chronic infection; the exception as a rule was where the involvement was advanced pyorrhea alveolaris. I recently had three patients present where the morning temperature was subnormal, varying from one to one and one-half degrees, and an afternoon abnormal temperature of from one-half to two degrees, which ceased, as did the secondary involvement with the removal of the chronic infection about root ends. In a number of instances patients had the following symptoms besides the secondary disturbances, severe mental depression; brief periods of dyspnea associated with sharp pains in the thyroids; severe one-sided headaches; pain described as starting at the base of the brain spreading backward, upward and forward; gastric disturbance taking the form of nausea following severe short periods of nervous depression. In some instances the patients would affirm they felt normal throughout the day with the exception of acute fatigue lasting from one-half to one and one-half hours with the onset sudden and the passing gradual.

I desire to call attention to a few cases for the purpose of showing the changes occurring in the blood picture with the eradication of the focal infection when a patient presents with an abnormal blood finding:

The usual blood findings in pyorrhea cases where the disease does not involve the apical third of the root.

Case 135—Aged 57 years. Sept. 19, 1914.		Case 65—Aged 62 years. Oct. 27, 1914.	
Hemoglobin	88%		88%
Erythrocytes	4,024,000		4,640,000
Leucocytes	5,600		6,600
Polymorphonuclears	54%		58%
Large Mononuclears	4%		9%
Small Mononuclears	39%		31%
Eosinophiles	3%		2%
Systolic	130		120
Blood Pressure—Diastolic	90		92
Pulse pressure	40		28

Case 253, aged 24 years. Patient suffering from severe sciatica for three months, confined to the hospital for three weeks. Molar tooth extracted because of the presence of a chronic infection about the root end two months previous to my examination and patient improved for ten days. Then the sciatica returned in its full intensity and he was unable to walk for a few days at a time. Careful examination of the socket from which the tooth was removed revealed the presence of a chronic infection. Afternoon abnormal temperature of one-half to two degrees.

Hemanalysis before and after the infected area had been eliminated.

Feb. 18, 1916.		Mar. 17, 1916.
Hemoglobin	93%	95%
Erythrocytes	4,520,000	4,888,000
Leucocytes	9,200	7,000
Polymorphonuclears	72%	58%
Large Mononuclears	11%	11%
Small Mononuclears	17%	30%
Eosinophiles	0%	1%

Socket curetted February 18, 1916. Sciatica was exaggerated and patient was confined to his bed for a few days, but gradually improved and on April 1, 1916, took a position as intern.

Case 64, aged 48 years. Patient suffering from serious iritis. All causative factors with the exception of pyorrhea about the four inferior incisors had been excluded. Chronic infection about these teeth thought to be the definite cause of the iritis. Teeth extracted one week ago, patient feels there has been some improvement since the extraction of the teeth. Mouth had been examined and declared to be free from all chronic infection. Radiograms showed two bone abscesses. Hemanalysis showed possible effects of chronic infection upon the system.

Hemanalysis before and after the infected areas had been eliminated.

Oct. 23, 1914.		Nov. 4, 1914.
Hemoglobin	70%	93%
Erythrocytes	4,440,000	4,732,000
Leucocytes	10,400	7,600
Polymorphonuclears	72%	64%
Large Mononuclears	1%	6%
Small Mononuclears	25%	29%
Eosinophiles	2%	1%

Teeth extracted and bone areas curetted October 24, 1914. Vision reported normal by those in charge November 3, 1914.

Case 225, aged 37 years. Patient suffering from articular rheumatism for seven years. Tonsils removed two years ago. Hemanalysis revealed the possible evidence of chronic infection. Radiograms showed rarefied areas about the root ends of two teeth.

Hemanalysis before and after the infected areas had been eliminated.

	Dec. 4, 1915.	Jan. 12, 1916.
Hemoglobin	94%	99%
Erythrocytes	4,448,000	4,752,000
Leucocytes	14,000	7,800
Polymorphonuclears	75%	60%
Large Mononuclears	3%	7%
Small Mononuclears	20%	32%
Eosinophiles	2%	1%

Teeth were extracted and areas curetted. Hemanalysis taken five weeks later was normal. The articular disturbance was not exaggerated for the next few days after the operation as is frequently the case. Patient had gradually improved and is able to get about comfortably.

Case 106, aged 46 years. Patient complained for years of severe pains starting at the back of the neck and base of brain, radiating up the back of the head and forward to the temples with fleeting pains in the anterior part of the upper jaw. Hemanalysis revealed the possible evidence of infection.

Hemanalysis before and after the infected area had been eliminated

	Feb. 12, 1915.	Apr. 21, 1915.
Hemoglobin	91%	96%
Erythrocytes	4,456,000	4,784,000
Leucocytes	11,200	7,000
Polymorphonuclears	74%	61%
Large Mononuclears	2%	5%
Small Mononuclears	24%	32%
Eosinophiles	0%	2%

Radiogram showed the presence of an impacted tooth with a rarefied area present. Tooth was removed and the area curetted. In ten days the severe headaches ceased and to date there has been no return.

Case 217, aged 38 years. Patient suffering from neurasthenia for three years, complained of periodical pain in the thyroids and nausea following the more severe periods of nervousness. Pains in the neck radiating up over the head with a fullness in the ears. Repeated examination of the entire body, with the exception of the mouth, found nothing abnormal that could be held as a causative factor. The hemanalysis showed the possible evidence of chronic infection. The radiograms revealed rarefied areas about the root ends of three teeth and two impacted third molars.

Hemanalysis before and after the infected areas had been eliminated.

	Nov. 18, 1915.	Dec. 23, 1915.
Hemoglobin	96%	97%
Erythrocytes	4,952,000	4,704,000
Leucocytes	12,000	8,200
Polymorphonuclears	76%	62%
Large Mononuclears	8%	3%
Small Mononuclears	16%	35%
Eosinophiles	0%	0%

The more extensively involved teeth were extracted, the areas curetted and the other teeth retained and treated. The blood findings changed to normal. The secondary involvement was exaggerated for a few days after the operation followed by a total disappearance of the above stated symptoms and a gradual improvement in health.

In case No. 79 the hemanalysis showed hemoglobin, 93 per cent.; erythrocytes, 4,840,000; leucocytes, 9,600; polymorphonuclears, 70 per cent.; large mononuclears, 5 per cent.; small mononuclears, 25 per cent.; eosinophiles, 0. A few days after the dentist had been able to carry the remedy to or through the root end, the blood count changed to hemoglobin, 100 per cent.; erythrocytes, 5,016,000; leucocytes, 8,000; polymorphonuclears, 60 per cent.; large mononuclears, 8 per cent; small mononuclears, 30 per cent; eosinophiles, 2 per cent. The secondary involvement began to improve and continued to do so until a brief period after the root canals were filled; then, upon complaint from the patient that the original secondary trouble had returned, another blood count was taken, which showed hemoglobin, 100 per cent.; erythrocytes, 4,976,000; leucocytes, 10,400; polymorphonuclears, 72 per cent.; large mononuclears, 2 per cent.; small mononuclears, 24 per cent.; eosinophiles, 2 per cent. A radiogram then taken proved the root canals had not been more than two-thirds filled. The root canal filling was removed and treatment again undertaken. The dentist in charge decided he would be unable to perfectly fill the canals and the patient was allowed to go with the remedy in the tooth for six weeks. The neuritis increased and the blood examination made six weeks after the last treatment had been placed showed it to be practically the same as the original count. I removed the tooth and curetted the periapical area. The blood count taken a few days after was normal: Hemoglobin, 102 per cent.; erythrocytes, 5,008,000; leucocytes, 8,400; polymorphonuclears, 63 per cent.; large mononuclears, 5 per cent; small mononuclears, 32 per cent.; eosinophiles, 0. The neuritis ceased.

Case 70 was a patient thought to be suffering from a chronic infection in the form of pyorrhea only and the blood examination showed slight leucocytosis, which did not materially change after treatment, nor did the first series of radiograms of the teeth show a rarefied area, but upon Faradic test a pulpless bicuspid was found. This tooth was treated—root canal filled—the secondary involvement disappeared, the blood count returned to normal and has remained so.

The question might naturally arise in the minds of the medical men present, why occupy time with

illustrations that go to demonstrate the possibility of perfectly filling root canals and controlling the periapical infection about teeth in favorable cases? My answer is, it is of urgent importance because many medical practitioners in searching for focal infections have found such a large percentage occurring about root ends of teeth where root canals have been filled that they have reached the conclusion it is unsafe to retain a pulpless tooth and have informed patients an infection always occurs about it and requested extraction. In other instances they have demanded of dentists not to remove pulps and fill root canals for any of their patients. With some it has become common practice to decide what is best for the patient's teeth from radiograms, with the result there has unfortunately developed during the last few years, a feeling of discord between the members of the medical and dental professions over this problem of who should decide what to do with teeth involved with chronic infection. Until the last five years it is true the dental profession has not been sufficiently careful in filling root canals definitely and aseptically and much of the criticism was justified; but at the present time an increasing number of dentists are employing every known aseptic measure and are checking up root canal operations with radiograms. Therefore, is it not unwise for any group of men, either dental or medical to decide that a chronic infection always occurs about the root end of a pulpless tooth until more definite proof is at hand?

The foregoing case histories and last statement give me the opportunity to focus the attention of those called upon to determine the presence of chronic focal infections associated with teeth, not to confine their examinations only to the supporting structures and radiograms taken of the roots to outline rarefied areas, for one may have a pulpless tooth present without a rarefied periapical area and at the same time have a chronic infective process in the remnants of pulp tissue, which I have found to be accountable for serious secondary effects.

Nor can one with any degree of assurance eradicate periapical infections by the mere extraction of teeth unless it be accompanied by a curettement, and in a few instances I have had patients go several months without symptoms of the original secondary involvement and then have noted their appearance without the development of a new focal infection and upon making blood examinations I found the possible evidence of a chronic infection, although the tissue had healed with every appearance of being normal over the area where the tooth was removed. I then opened into the old infected tract, curetted and in one instance the patient had a definite reaction similar to that experienced after injection of an autogenous vaccine during the original treatment. A second patient had a less marked reaction. Therefore, it becomes necessary to do something more than to extract teeth or amputate roots and do an indifferent curettement to secure positive elimination of focal infections associated with teeth.

The appropriate procedure when a patient is suffering from a disease possibly caused by a chronic oral infection is to have radiograms taken of all teeth and their supporting structures and of the jaws for partially or totally impacted teeth. If questionable areas are found, blood examinations should be made; then if the physician with the patient will consult the family dentist or oral surgeon to determine if the infection can be controlled with retention of the teeth or if extraction with or without curettement is indicated and also ascertain the important information whether or not any tooth contains an infected pulp which the radiogram would not reveal in any case, then and then only will the patient's welfare in so far as the mouth and teeth are concerned be properly protected. I speak of this conference because I am aware that in many communities there are medical men who maintain every tooth should be extracted about which a chronic infection is found and on the other hand we meet dentists who wish to retain most of these dental organs. In closing this part of the discussion I wish to give a word of warning against the removal of many teeth for these patients at one time for serious effects have frequently resulted when too many infected areas have received simultaneous surgical treatment. Even in the removal of a single infected area, we expect an exaggeration of the symptoms resulting from the secondary lesion.

The sane position to take, as I see it, is: It is unwise and possibly unfraternal for the medical profession to decide when such teeth should be extracted. For as a body they have not been

trained sufficiently in dental pathology to know when a chronic peridental infection is extensive enough to demand extraction. Therefore, the dental profession can rightfully ask the courtesy of the medical profession that such patients be referred to the family dentist who will diagnose alone or in consultation with those particularly fitted in this work, whether the teeth can be retained and the chronic infection permanently controlled. Yet, some medical specialists have informed me they are not justified in sending the patient to the family dentist because he will not assist in demanding the extraction of all hopelessly diseased teeth and this to a degree is true, for we find many members of the dental profession who, day after day, are retaining teeth for bridge abutements, about which exist incurable chronic infections. All such teeth should be extracted and the diseased areas around them properly treated. Hopelessly diseased pyorrhea teeth are sometimes retained because they can be made comfortable, root ends are being amputated without regard to the surrounding bone involvement—to the end that in both instances the infection is only temporarily controlled and the injurious effect to the patient allowed to continue.

As I see it the dental profession must adopt this axiom. All teeth involved with pyorrhea or having chronic infection about root ends which cannot be controlled must be extracted—or stand convicted before the medical profession and the public as being unable or unwilling to properly care for the health of patients in accordance with the findings of our most scientific investigators.

The prophesy is here made that chronic infections associated with teeth will not be effectively managed until the dentist's education includes more of bacteriology and general pathology and the physician's knowledge of dental pathology is more comprehensive. But until this much needed state of affairs is attained, can we not agree with William Hunter, author of the term "Oral Sepsis," when he affirms the treatment of the lesions of strepto and staphylococci found in the mouth, throat, nose and accessory sinuses belongs to no one department of medicine or surgery, but is common ground upon which the general practitioner of dentistry and medicine, physician and surgeon, eye, ear, nose and throat specialist, and lastly the internist and oral surgeon all meet with equal responsibility?

In closing I wish to express my appreciation of Hunter's early studies upon the effects of oral sepsis and the valuable contributions of Billings and his associates upon the systemic effects of chronic focal infections.

SOME COMMON ERRORS IN THE PRACTICE OF OBSTETRICS.*

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The art of obstetrics is still far from perfect. Labor is too frequently a pathological phenomenon and the errors of commission and omission often entail severe and lasting injury upon the lying-in woman so that many of them dread the ordeal of accouchement as they would a serious abdominal operation. Unfortunately, the low fees obtained for obstetric delivery in most cases constitute the main reason for the apparent neglect by the physician in his treatment of these cases, despite his adequate training in the modern medical college and the judicious advice found everywhere in the modern text-books and the higher grade of medical journals. Only when the obstetric fee is raised to a respectable figure or the scientific conscience of the physician is sufficiently aroused from its seeming lethargy may we hope to improve the morale of the obstetric art.

It is my present purpose to call to your attention briefly some of the most flagrant errors in the treatment of the lying-in woman as they have come to my attention in consultation and hospital practice, that by so doing I might stimulate the desire to render more efficient service to the patient who trustingly places her life and well being in our professional keeping.

The introduction of pituitrin in obstetric therapeutics marked a great advance in our art, but like many other agencies, it has also become a power for evil. The physician sees in this adjuvant a means of hastening the birth of the child and of avoiding the otherwise necessary watchful waiting which is imposed upon him. Many physicians use it in every case as a routine measure, often with disastrous results to both mother and child. This drug has the same injurious effects as the too early application of the forceps and may result in tears of the cervix,

*Read before the West Side Branch of the Chicago Medical Society, April 20, 1916.

vagina and perineum, prolapse of the uterus, bladder and rectum and death of the child by asphyxia. In two cases which came under my observation during the past year uterine rupture occurred, one of which required a Porro operation to save the mother's life. Too large doses are used; an ampoule, 15 minims, being the recognized dose and this is repeated several times if delivery does not take place. As a matter of fact, not over 5 minims should be used at one time and 3 minims are often sufficient. If the indications are strictly drawn, the best results are obtained by this latter dosage. The rapid action, the long continued uterine contraction interfering with the fetal and maternal osmosis of gases and the tumultuous *vis a tergo* produced are the signal drawbacks to its administration in the larger quantities.

From a long and successful experience with this agent, I have recognized the following conditions governing its use:

1. Multiparæ.
2. Cervix effaced and os dilated.
3. Head at the outlet or freely moveable in the pelvis.
4. No abnormal presentation.
5. Preparations for forcep delivery in case of tonic uterine contractions threatening the child's life.
6. Small doses, not over 5 minims, and better 3 minims, which may be repeated not oftener than once every half hour.
7. Pituitrin should not be given to *hasten a normal delivery.*

In other words, the resistance offered by the birth canal and maternal soft parts must be nearly overcome and only a few strong pains being sufficient to effect delivery.

The birth canal is not a straight cylinder nor is the fetal head a sphere to be seized in any manner with impunity by the forceps. This is a fact not practically recognized by many, and as a consequence, additional trauma is inflicted upon both mother and child. The importance of accurate diagnosis of fetal position cannot be overestimated, especially in forceps delivery. The difficulty of making a correct diagnosis late in labor when the cephalic landmarks are obliterated by the caput succedaneum and the associated edema of the maternal soft parts is recognized by all. This difficulty is easily solved by determining the position of the ear and from this finding the direction of the occiput is readily made out; a point in diagnosis reported by the author in 1907. By following this method of making a diagnosis, errors are few and by adjusting the fetal head to the various planes and diameters of the pelvic canal, a minimum amount of traction and pressure will be necessary to effect delivery. When one observes the large number of children brought into the world in a mutilated condition, he must admit that a faulty diagnosis of fetal position is the most common etiological factor.

The too early application of the forceps associated with delivery forcé and not according to the recognized rules of technique is a very common error. The most frequent indication for the forceps is "office hours." One fundamental difference between the general practitioner and the obstetrician is that the latter knows how to wait; the former does not. Nature requires and demands that the preparation of the soft parts for delivery shall be made slowly; many hours are often required in the average case and the future well being of both mother and child depend upon non-interference with the natural powers of labor. The earlier interference is attempted, the greater is the trauma inflicted upon the mother. It seems strange that forceps are being applied through the uneffaced cervix and undilated os, but such is the case in a great many instances. The dangers of such a procedure are too well known to mention. Only last week in a large hospital in Chicago, on applying forceps, the interne asked the author if he would "brace" him by putting his shoulder against his back, stating that many physicians required this support to avoid falling backward from the chair and permitting them to use greater force. Comment is not necessary, but the shame of it is unspeakable. These twentieth century physicians are still using the methods in vogue in the sixteenth century. In the bright sunlight of scientific knowledge and modern learning, these men are still groping their way along the darkened recesses of the middle ages. If teaching, writing and speaking are not able to change this pernicious practice, and apparently they are not able to do so, what does the future hold in store for us? Are the future mothers and children of this land to be subjected to this increasing peril which

permeates every locality with its enervating blast? The time has long since passed when this practice should cease.

Lacerations of the soft tissues including the perineum may occur in the hands of the most efficient obstetrician and the physician should not be blamed for their occurrence *per se,* but to neglect an immediate repair of the trauma insures a verdict of guilty. Immediate perineorrhaphy is not a simple procedure, judging from the number done and the results therefrom. It is a common experience in the consulting room of the gynecologist to examine a relaxed and torn perineum after the patient has stated that her physician had repaired the perineum. If the physician would examine every woman some six months after delivery upon whom he had performed perineorrhaphy, he would be in a better position to judge of the character of his work. It is probable that not over 25 per cent. of the women in average hands escape from a lacerated perineum with a serviceable organ. Better training in surgical technique and routine examination of the soft parts only will remedy this defect. Only when one considers that the pelvic floor is the inverted keystone of the arch in female physical health does he realize the importance of perineal contiguity and efficient repair. It is necessary to suture the separate layers of fascia and muscles to their contiguous ends, to suture the vaginal mucosa together to keep the lochia out of the wound as much as possible and to suture the skin accurately. The sutures must not be too tight nor too loose and the after-care during the process of healing must be efficient. This is a far different procedure than the haphazard method of through and through suturing with catgut and then turning the case over to some casual woman to keep the parts clean. No matter how well the suturing has been done, the end results depend upon the after-care. The performance of episiotomy which extends beyond the anterior border of the levator ani muscle will obviate many a tear and gives the operator a clean cut field for repair. Its employment should be increased.

The integrity of the pelvic floor is of great assistance in preventing the occurrence of prolapse of the various organs of the pelvis and labor should be conducted so that prolapse will not take place. Early traction with the forceps, bearing down efforts of the mother during the first stage and neglect in repairing lacerations all exert their influence toward this unfortunate condition. So many women in their early twenties suffering from procidentia after a single forceps delivery convince us that the physician needs to revise his methods of treatment in this respect.

A very common error of omission is the neglect of the lying-in woman during the puerperium. The normal period lasts about six weeks and the changes taking place during this time are all important. Neglect of the patient may result in subinvolution of the uterus, retrodisplacements, rectocele and cystocele, permanent rectal diastasis, constipation and the various disturbances of neurasthenia. Certainly, these untoward conditions are grave enough to warrant our care and treatment during this critical period. The average physician will give his close attention to a case of evanescent measles or chicken-pox, but he will simply neglect the puerperal patient when so much depends upon a normal involution of the organs. The reason, of course, is that the physician is expected to make two or three calls which are included in the original fee and that any extra calls are not paid for. Again, the reason is money. The great frequency of ill health, of surgical operations, of great expense to the family and the entailed suffering surely give evidence to the fact that competent medical attention is necessary during the period of involution. One can only say with truth that he has managed an obstetric case successfully when some six or eight months after delivery the mother suffers from no pelvic or abdominal wall pathology and that her health is equal to that which she enjoyed at the beginning of pregnancy. Judged by this standard how many of our cases are properly treated. Labor, theoretically, is a natural phenomenon and as such should be performed without injury to the maternal tissues or perversion of the normal functions: practically, it is, as De Lee has justly stated, a pathological process and, except in competent hands, results in injuries to the maternal tissues and more or less permanent perversion of the normal functions. The chasm between the real and the ideal is wide and deep and its obliteration depends upon the conscious care and ability of the general practitioner.

Puerperal sepsis is on the increase. About 5,000 women died in the United States during the

year 1913, according to the last census. The number of those infected who have recovered must be very great. While some cases of puerperal sepsis are due to germs resident in the patient's body, the majority are caused by the infective hands, dressings and instruments of the medical attendant or nurse. Shaving the vulva at the beginning of labor and the substitution of rectal for vaginal examinations will greatly decrease the number of infected cases. Labor is conducted by two methods of antisepsis—extensive and intensive. By the extensive method, as is carried out in hospital practice, the bed, table, basins, patient and attendants are covered with sterile dressings. The gowns, gloves and instruments are sterilized and placed in position. These dressings soon become contaminated with organisms from the dust and air. The physician, assuming that they are still sterile, handles them with impunity. He touches with his gloves the towels, sheets and gowns that have been exposed to non-sterile influences, sometimes for hours, and transmits these germs into the vagina and cervix. A small hole in the glove allows the retained perspiration to escape and this secretion is teeming with bacteria. One can easily see the many dangers connected with this method of antisepsis even in the otherwise well regulated hospital.

The other and better method is known as the intensive method and has been for years in vogue in the out-door department of the Chicago Lying-in Hospital. The gloves and basins are sterilized at the patient's home; the vulva is shaved and cleansed with lysol and bichloride solution. The abdomen is covered with a plain laundered towel wrung out of the bichloride solution. The fact is impressed upon the internes that the only sterile areas are the gloves, the insides of the basins holding the solutions, the cotton in the sterile glass jars (sterilized at the dispensary) and the edge of the vulva—relatively sterile. The abdominal towel is not regarded as strictly sterile. Every other material is regarded as unclean and is treated accordingly. The attendant, then, during his conduct of the labor, touches nothing but the solutions, basins, vulva and the fetus as it is delivered. The results obtained by this method, in the homes of the Ghetto patients where sanitation is so poorly understood are wonderful and the mortality and morbidity rates are no higher than those of many first-class hospitals. These two methods should be combined in every case in the hospital and home if properly carried out the frequency of puerperal sepsis will be reduced to a marked degree.

A rather cammon error is the willful interference with the mechanism of the third stage of labor. The process of placental separation usually takes half an hour. The retroplacental blood confined by the attachment of the membranes to the uterine wall plays the chief rôle in this process. If no uterine massage is indulged in, the placenta is completely separated and is expelled intact. If the process is interfered with, the blood is forced through a rupture in the membranes and escapes prematurely and retention of placental tissue results. Another danger of the common error of uterine massage is the liability of postpartum hemorrhage. It takes from 20 to 30 minutes for the blood in the uterine sinuses to clot and firmly adhere to the sinus wall so that the vis a tergo cannot expel it. If frequent massage is performed, these loosely attached clots are expelled, form again and are again expelled with the result that when the third stage is completed, the cohesion of the clots to the sinus wall is so weak that postpartum hemorrhage occurs. Many young men in their first years of practice learn this fact by sad experience, but as time goes on their cases of hemorrhage become rare. Some never learn the lesson and in the experience of these latter men the larger number of bleeding cases are found. The rule is, do not be in a hurry; never massage the uterus except in the presence of a serious health or life threatening hemorrhage; then usually the placenta is to be removed manually and the uterus tamponed. Merely supervise the uterus and prevent it from filling up with blood and rising high in the abdominal cavity.

The last point to which I wish to call your attention is a plea for the more extended use of the tracheal catheter in the treatment of fetal asphyxia. In my own experience it has saved the child's life in scores of cases when no other means were available. A frequent cause of asphyxia is the collection of mucus, blood or liquor amnii in the trachea and unless this is removed quickly, the child will die. The only way to remove it is by the tracheal catheter. One can easily remove the mucus from the throat, but the passing of the catheter is rather difficult unless one has had some

experience in the technique. The forefinger of the left hand is passed into the throat down to the epiglottis, the catheter is passed along the palmar surface of the finger and when the tip reaches the epiglottis, it is forced anteriorly and is made to enter the glottis. The mucus is then withdrawn and frequently the child cries at once. If not, the catheter is reintroduced and the operator blows into the lungs of the child to expand them and by compressing the chest, this air is expelled. By continuing these motions, many a child can be saved. It is probably true, however, that not one physician of fifty in general practice possesses or can use a catheter properly. The technique is easy to learn and the results are exceptionally good. It seems hardly fair to ask the mother to go through the strain of pregnancy and the ordeal of labor to lose her baby through an error at this critical time, and yet it happens every day.

On the other hand it has been my good fortune and pleasure to bear witness to excellent work done by very many physicians whom I know and in the abstract to thousands of others who are quick to improve their methods when faulty and who are eager to perform their duty fully and conscientiously for the best interests of their patients.

PROGNOSIS BY NUCLEAR UNITS.

H. H. Seyl, M. D.,
CHICAGO.

Arneth long ago established that polymorphonuclear leucocytes may be grouped into five classes, as per the nuclear lobes in each cell. He also showed that in many diseases a transition occurs and that the number of the lower increase and the higher decrease correspondingly.

He counts one hundred such cells and places each in a column that represents the number of its nuclear lobes or units, the number of columns being five.

The normal blood shows about as follows:

Nuclear lobe column.....	I	II	III	IV	V
Number of cells.....	5	35	41	17	2

That the above is true, is granted, but no rational index for its interpretation has been established and therein lies the value.

The old method of attempting to establish an index was to add the number of cells in the first two and a half columns, as given previously. This properly classifies the units, but it disregards them at once by respecting only cells in the Count, and only a part of them. Such procedure then does not recognize the Transition. Since a transition does occur, all cells must be respected. Any Index which does not, is not true and so is of little value for prognosis, or diagnosis.

The old method varies even when compared to itself, as shown by the following:

Columns	I	II	III	IV	V	
Count A	27	42	23	7	1	80.5
Count B	24	49	21	5	1	83.5
Count C	30	38	26	5	1	81.0

If B be a true index, by the old method, then A should be higher than C, or if A be O. K., then B should be lower than C.

The old method will be compared with the new nuclear index, and it will show further discrepancy.

It is simple to obtain an accurate prognosis of various diseases by the author's new count, but it must be remembered, the value is dependent upon the relative competency of the operator.

The method is this: One hundred cells are counted and classified as in the old way. The next step is to multiply the number of cells in a column by the number of nuclear lobes, which it represents. This gives the total nuclear units in that column. So all the columns are treated. The totals of all the columns are then added, giving a grand total. This grand total is the number of nuclear lobes in one hundred cells, which were counted and classified.

Example:—Number of lobes	I	II	III	IV	V
Number of cells	46	32	18	4	0

Process—46x1&32x2&18x3&4x4&0x5 — 180. Grand total or index.

Normal blood is about	I	II	III	IV	V
	5	35	41	17	2

(Index) = 276.

Let us now compare the two counts. We respect the new index as authentic, and so compare the old with it. Given two examples, in which two new counts are equal, it will be seen that the old varies greatly.

Example I.							
Number of lobes	I	II	III	IV	V	New	Old
	18	41	35	5	1	230	76.5
	35	40	27	6	2	230	88.5
Example II.							
Number of lobes	30	38	26	5	1	209	81.0
	24	47	25	4	0	209	83.5

In general it may be said that the lower the index the more unfavorable the prognosis.

At the Chicago Fresh Air Hospital the author established the following with accuracy:

	The index is from
Tuberculosis, arrested cases.....	215 to 250
Tuberculosis, incipient cases.....	195 to 215
Tuberculosis, moderately advanced....	180 to 195
Tuberculosis, far advanced & terminal	180 down

All cases of 135 or less died. The far-advanced cases are usually about 150.

At the Augustana Hospital, Chicago, further substantiation was displayed.

Case 1. *Pernicious anemia* (patient recovered).

Before splenectomy and transfusion—Index = 113 (2 hours before).

After splenectomy and first transfusion—Index = 106 (10 minutes after).

After splenectomy and second transfusion—Index = 117 (22 hours after).

After splenectomy and second transfusion—Index = 121 (80 hours after).

After splenectomy and second transfusion—Index = 124 (9 days after).

After splenectomy and third transfusion—Index = 133 (6 hours after).

After splenectomy and third transfusion—Index = 144 (30 hours after).

After splenectomy and third transfusion—Index = 151 (2 months, much improved).

Case 2. *Pernicious anemia* (patient died).

August 13, 1915, after splenectomy and transfusion—Index—108.

September 16, 1915, after splenectomy and transfusion—Index—102.

Case 3. *Spleno-myelogenous leukemia* (patient died from hemorrhage).

Eighteen hours before first transfusion—Index=102.
Two hours before first transfusion—Index=103.
Fifteen minutes after first transfusion—Index=106.
Eight hours after first transfusion—Index=100.
Thirty minutes after splenectomy—Index=102.

Case 4. *Lymphatic leukemia* (patient died)—Index = 100.

The nuclei were not feathered so seemed to show no tendency toward karyokinesis.

At the German Hospital of Chicago the following were noted:

Lymphatic leukemia; somewhat improved—Index= 115.

Splenomyelogenous; somewhat improved—Index= 115.

Pernicious anemia; not improved—Index=109.

Trichinosis (eosinophylia); much improved—Index =125.

Typhoid-pneumonia; died—Index=113.

Terminal nephritis; died—Index=103.

(Ludwig's) angina; died—Index=116.

Pneumococcic empyema; improving, 102-130-153-178.

Hemophylia; died—Index=114.

Eclampsia; recovered, 138-146-159-169.

In the cases of tuberculosis given, the arrested ones include outpatients of artificial pneumothorax, under treatment of Dr. E. A. Gray, many of whom are doing self-supporting work.

The author is indebted to Dr. Ethan A. Gray of the Chicago Fresh Air Hospital, where this count was thoroughly studied over a period of considerable time, and under close observation over a series comprising a large number of cases. Also to Dr. T. B. Sachs for kindness at Edward Sanitarium, Naperville, Ill. Also to Dr. Hubert Dunn, Augustana Hospital, Chicago, as well as to Dr. Weaver of the Durand Hospital, Chicago, at which latter blood was obtained from cases of exanthem diseases. It will require further work in these conditions to establish an index, but it is interesting to note that the same seems quite low during the febrile and early desquamating stages.

It is safe to state that in tuberculosis and the primary anemias the new index is reliable and of distinct value prognostically.

A transition may be expected in many conditions, especially those grouped as anaphylactic in type.

The author thanks Dr. Chas. F. Fischer of Columbus Laboratories, Chicago, for corroborative work along this line.

30 N. Michigan Boulevard.

REPORT OF A SERIES OF CASES OF TRICHINOSIS, WITH REMARKS ON DIAGNOSIS.*

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Ever since 1835, when James Paget discovered the encapsulated worm in the rectus muscle of a body he was dissecting, and a few years later, when Richard Owen accurately described the parasite and gave it its name, Trichina spiralis, an ever increasing number of cases of infection with this parasite, either sporadic or epidemic, has been recognized. Epidemics of various degrees of severity have been quite common, and, while there have been many such in the United States, the severe ones have occurred in Germany.

*Read before the Chicago Medical Society, March 1, 1916.

For example, at Hedersleben, a town of two thousand, 337 took sick at one time. More recently at Braunschweig there were 254 cases, and in 1903 in Hamburg 66 cases. C. U. McClure, in 1914, reported 30 cases. While the cases occurring in an epidemic, where the etiology is easily determined, are therefore quite readily diagnosed, the cases occurring sporadically, with no history of having eaten infected meat, or at best an indefinite history, are on that account all the more difficult to determine.

It has been my good fortune to see quite a large proportion of the cases of trichinosis that have entered the County Hospital in the last few years. Incomplete records, errors in filing, and the absence of a well-arranged library until recently, have rendered it impossible to gather together the histories of more than about 29 cases.

There have been three cases occurring in children, all the others in adults, 21 cases ranging from the ages of 18 to 35. The inquiry as to nationality is not particularly enlightening. The majority of County Hospital patients are foreigners, and so, when I say that there were eight Slavs, seven Germans, four Italians and three Americans, and the remainder scattered among other nationalities, the information is not especially illuminating, except in so far as these very people are the ones who eat the greatest amount of pork, and often not thoroughly cooked. Only 13 gave a definite history of having eaten raw or partially cooked meat, either as sausage or in the form of hamburger steak.

A consideration of the various forms of onset is quite interesting and instructive. When we think of trichinosis, we immediately conjure up a history of nausea, vomiting and diarrhea, occurring a few days after the ingestion of tainted meat, followed in a week or so by symptoms of general muscular invasions, muscular pains and more or less prostration.

There were five cases with a history very suggestive of typhoid fever—chilliness, malaise, headache, loss of appetite, slight cough, epistaxis in two cases, and fever. Only six gave the classical history of gastro-intestinal disturbances, such as vomiting or diarrhea with abdominal pains, followed later by muscular pains. This varied in some cases from a few days to about ten days. Five gave a definite history of constipation. In two cases there was abdominal pain of an intensity severe enough to suggest some intra-abdominal condition. In three cases muscle pains were first noticed. Hemoptysis, without subsequent evidences of pulmonary tuberculosis, occurred in two. Quite frequently in this series pneumonia is suggested. This has been the case in five instances, where difficulty in breathing was one of the first symptoms the patients complained of. Edema occurs as a symptom both of the gastrointestinal stage and of the period of invasion. Four patients were first apprised of their ailment by noticing an edema of the eyelids and face, and one, an edema of the ankles, while ten gave a history of having noticed an edema at some stage of their sickness, before coming to the hospital. Two patients noticed pains about the eyes, while eight suffered with severe headache.

Two patients gave a history of sudden onset: One, a boy aged 19 years, with fever, pains in legs, nose bleed, slight cough, high fever, severe headaches, and clouding of the mind. The other, a man aged 24 years, with chilliness, headache, substernal pain, cough and distinct pleural pain.

The time elapsing between the period of intestinal infection and the stage of muscular invasion, or even the stage of ingestion of infected meat and the first gastro-intestinal symptoms varies so much, that an accurate history of the earlier symptoms may be unobtainable. Kratz found 98 patients in whom the first symptoms came on in one to five days after eating infected meat; 76 in six to ten days; 67 in eleven to twenty days; 33 in twenty-one to thirty-three days, and the slowest manifesting themselves as late as forty-two days. Symptoms may occur in a few hours, as mentioned by Kratz, and as found in one case of this series. This was in an American, who gave a very typical history.

The clinical course of trichinosis, when fully developed, presents certain well-marked and well-defined symptoms. The ones with which we are best acquainted are those of muscular invasion—pains in the legs and in the arms. While 13 had pains in both arms and legs, three remembered arm pains and two leg pains, and two abdominal pains. In addition, three were unable to chew their food.

Staubli calls attention to the fact that the greatest intensity of invasion shows itself in the diaphragm, the intercostal muscles, the larynx and the masseters. This involvement varies to

a considerable extent, however, and various groups of cases show a varying degree in intensity in different groups of muscles. That is to say, that while at post mortems trichinae may be found most frequently in the tissues mentioned, the symptoms referable to these may not be so prominent as those in other muscles—as the legs and arms, for example.

The invaded muscles show not only loss of active motion, so that the patient lies prostrate, and unable to move either arms or legs, but even more so, an exquisite tenderness, and at times a peculiar wooden feeling exists. I remember one case particularly, where the muscular infiltration was so pronounced that the impression of a woody phlegmon was given. In this case as many as a dozen trichinae were found, unencopsulated in a piece of muscle sufficiently transparent to be examined with low power and about 2 mm. square. At other times the tenderness is not very severe, and can be elicited only on rather firm pressure.

One group of symptoms—pains in the jaw muscles, the back of the neck and shoulder—may suggest tetanus. Objective symptoms, which are the result of muscular infiltration, and not of an actual involvement of the nervous system, are a Kernig sign and diminished or increased patellar reflex. The diminished reflexes with Kernig furnish a contrasting group of symptoms, which is not characteristic of an organic nervous lesion, and so all the more suggestive of trichinosis.

We shall consider those which are next in frequency and almost a constant accompaniment —febrile disturbances, chilliness or chill, fever, prostration, variable pulse rate and sweats. Prostration was quite pronounced in three cases; chill or chilliness occurred in the majority of them. The pulse temperature curve showed a fairly remarkable constancy. While temperatures of 101 to 102.5 were present in over half the cases, still temperatures of 103 to 105 occurred quite frequently, and in one fatal case, where death resulted from a cortical disturbance, convulsions and hemiplegia, the temperature reached 105.6. But more interesting is the frequency of a low pulse rate with a high temperature. In 13 cases the pulse was slow compared with the temperature. For example, it was not uncommon to find a temperature of 103 with a pulse of 88 or 90. So characteristic did this appear, that a ward man in one of the wards at the hospital remarked one day when a patient was brought into the hospital with a febrile condition and low pulse rate, that it must be either typhoid or trichinosis. It proved to be the latter.

Staubli calls attention to a slow pulse at onset, becoming more rapid later on. The slow pulse with a dicroticity, which has been noted in about five to six cases, renders the differentiation from typhoid fever at times quite difficult. I shall return to this point later. Profuse sweating occurred eight times. It is probable that more cases would give such a history if a more careful inquiry were made as to its presence. Staubli and others have found sweats early in the course. Edema, to which attention has already been called, was found 12 times in the eyelids and once in the ankles. This is the secondary edema, occurring at the time of the invasion. It has been ascribed to a vasomotor disturbance on a toxic basis, where the embryos in the circulation furnish the noxae.

Leaving out of consideration for a moment the laboratory findings, one more objective symptom stands out prominently, and that is splenic enlargement. Schleip found splenic enlargement in 38 out of 46 cases. In this series only 12 times did splenic enlargement occur. This, however, does not include those cases, where splenic enlargement, noted only on percussion, occurs.

The laboratory findings are the most important from a diagnostic point of view, and are for the most part constant accompaniments of the condition. Of these, eosinophilia is not only the most frequent but, with subjective symptoms suggestive of trichinosis, practically pathognomonic. Thayer and Brown, at Johns Hopkins Hospital, were the first to describe eosinophilia in trichinosis. The number vary from normal to 86 per cent., the largest on record, reported by Kerr, of Philadelphia. Every case in this series showed at one time or other an eosinophilia, the lowest 4 per cent., where it had been much higher before, and the highest 56 per cent. In nine cases over 40 per cent. were present. It is a rather striking feature that in the very severe forms of infection, the eosinophile count may be very low, especially so just before death. Thus, in two of the fatal cases, the number of eosinophiles sank from 56 per cent. to 8 per cent. in one, and from 33 per cent. to 4 per cent. in the other. In some of the

severe infections the number may be 8 or 10 per cent. during the height of infection and rise to 38 or 40 per cent. with improvement.

All but five cases had a leucocytosis, ranging from 10,000 to 40,000, the latter being the highest and occurring in a fatal case. Of the five below 10,000, the lowest was 6,400. In all but one case, where the leucocytes were below 11,000 or 12,000 at the outset, the number increased to 15,000 or 20,000 later—a point to which attention has been called by others. This rise in the number of white cells is easily attributable to the absolute increase in the eosinophiles, the neutrophiles being increased only relatively. Anemia of severe grade did not seem to be a common occurrence. In no case, in which the test was made, was either a blood culture or a Widal reaction positive. I call attention to the negative blood culture on account of the tendency to ascribe the severe symptoms of infection to a bacteremia.

The trichinae have been found in the muscle in all but six cases; in the blood in one to four cases examined; and in the spinal fluid in two of six cases examined. All of these latter examinations have been made in the last two months. They have been found in the stool positively in one, and questionably in another case. While the recovery of the larvæ from the spinal canal is a much more striking method for demonstration than from the muscle, still its inconstancy yields first place for diagnostic purposes to the more positive method of excising a small piece of muscle and examining it under low power lens.

The six cases in which trichinæ were not demonstrated comprise five in which one or more examinations were negative and one in which no examination was made. Two gave a definite history of eating pork sausage, followed by febrile disturbances, muscle pains, edema, leucocytosis, eosinophilia of 48 and 49 per cent. respectively, with negative Widal and blood culture. The others, though not giving the same history, gave symptoms sufficiently characteristic, with eosinophilia, to render the diagnosis positive.

Febrile albuminurias occurred in almost every case with high temperature. In only five was the diazo reaction made and in all five it was positive.

One more finding, which helped to render the diagnosis difficult at times, was the presence of hyperemic spots on the abdomen or back. These occurred in five cases.

From what has already been said it can readily be seen that mistakes in diagnosis may be quite frequent. I believe, however, that if one is on the lookout for these cases, more will be found. This has been our experience recently at the County Hospital. Where a routine differential leucocyte count is made, and muscle tissue excised in the presence of tenderness and eosinophilia, a large number of cases will be found.

In five cases the examining room physicians diagnosed trichinosis on the patients' entrance into the hospital. In the others, eight were diagnosed as pneumonia, three as nephritis, nine as typhoid, one as influenza and one as organic heart lesion.

The reason for such mistakes has already been pointed out. Where, with a history of chilliness, malaise, headache, anorexia, epistaxis, abdominal distress, low pulse rate in comparison with high temperature, the former at times dicrotic, suspicious spots, splenic enlargement and positive diazo, the diagnosis of typhoid fever becomes almost imperative unless one makes a careful inquiry as to other symptoms, such as facial edema, and muscle pains, and makes a blood and muscle tissue examination. A leucocytosis and eosinophilia will help to clear the diagnosis. There is less excuse for calling trichinosis, pneumonia. Still, where the majority of fatal cases die of pneumonia—three in four in this series, and 64 in 84 deaths reported by Kratz—the reason for such a diagnosis becomes apparent. The symptoms at the onset, however, may be confusing, such as pain which seems to be pleural in character, referred to the upper abdomen or to the neck, due to the involvement of the intercostal muscles and the diaphragm. Here negative findings in the chest, with the positive ones for trichinosis, will clear the way for correct diagnosis.

Where edema of the face and the ankles occurs and urinary examination shows a small amount of albumen and casts, and, as is found at times, a blood pressure of 150 or more, one might think of nephritis. Temperature elevation, leucocytosis, the absence of a generalized edema and urinary suppression, together with an eosinophilia, will help to rule out nephritis.

I can see only one or two reasons for calling trichinosis, heart trouble—namely, the presence

of a systolic murmur at the apex, which in itself is of no diagnostic value, or the pressure of a pre-existing endocarditis. In six cases of this series there was a systolic murmur, without findings of endocarditis.

One other condition that might lead to confusion in diagnosis is a multiple neuritis. Here, however, a history of alcoholism, intoxication, as lead or arsenic, the sensory disturbances, loss of active motor power, changes in reflexes and electrical reactions on the one hand, with a positive history of eating imperfectly cooked or raw pork, gastro-intestinal disturbance, edema, splenic enlargement, diazo and blood examination, will show whether the patient is suffering from trichinosis or multiple neuritis.

Before closing, I wish to say a few words about the outcome. When I first heard of patients dying of trichinosis, I was rather surprised. That the mortality rate may be quite high is, however, the fact. Death rates of from 5 to 33 per cent. are reported. In the Hedersleben epidemic in 1865, 101 out of 337 infected persons died. In another epidemic 16 per cent. died. Recently at the County Hospital, where father, mother and three children were infected, the father and one child died. In this series of 29 cases, four died, two of pneumonia, one of cardiac failure, one of meningeal involvement. Death may occur anywhere from eleven days to eight weeks after infection. The history of the patient dying of cardiac failure is not complete. It seems that he had been progressing very favorably, when suddenly he developed dyspnea, a rapid pulse, and death ensued. While the trichinæ have not been found in the cardiac muscles, still, cardiac muscle changes, as focal necroses, have been described. If such a process involves the bundle of His, death can readily occur.

The patient dying of meningeal involvement is of particular interest. No writer on the subject has described the occurrence of definite brain involvement. Sicard has reported the finding of trichinæ in the cerebrum of a patient dying of trichinosis in the Boston City Hospital. This patient, 23 years of age, an Italian, came into the hospital February 13, with a history of having been sick seven weeks. He complained of severe headache, prostration, diarrhea of two or three days' duration, later on edema. Subsequently he was unable to walk, although he had no distinct subjective pain sensation. Examination showed definite muscle tenderness in the arms and legs, facial edema, eosinophilia of 23 per cent., becoming 4 per cent. before death, leucocytosis of 9,000 to 12,000, and no splenic enlargement. His temperature ranged from 102 to 104, and February 21, the day of his death, 105.6. Pulse from 82 to 96, at times going a little above 100. On the last day it became much more rapid and irregular. Diazo was strongly positive; muscles showed a few trichinæ, and spinal fluid none. Nonne and Noguchi were both positive. On the 19th, the patient had a generalized convulsion. Spinal fluid removed at this time was under high tension. On the 20th he was in deep coma, with pupils dilated, and increased patillar reflexes, bilateral Babinski and ankle clonus, and a well marked left-sided hemiparesis. The next day he was in a condition resembling status epilepticus, with almost constant convulsions. The following day he died. The post mortem held the same day was rather disappointing from gross appearance. The only findings of note were cloudy swelling of the kidneys, a bronchopneumonia, and a very marked hyperemia of the meningeal vessels. There seemed to be a more marked congestion of the post half of the right cerebral cortex. Histologic examination has not yet been made.

What has been of especial interest to me in the foregoing study is the frequency of trichinosis, when looked for; the presence of the organisms in the spinal fluid; and what has not been emphasized as strongly as the facts in these cases warrant, the comparatively low pulse rate with a high temperature.

Where a disease may produce symptoms so protean in character, and its prevention is so simple, it would seem that a greater effort to disseminate knowledge of a preventive nature in the case of trichinosis would not be amiss.

ACUTE OTITIS MEDIA.*

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The object of this paper is to assist the general practitioner in making an early diagnosis and to outline treatment which will preserve the hearing and avoid chronic suppurating ears and mastoid-

*Read before Aux Plaines Branch Chicago Medical Society, March 24, 1916.

itis, as well as brain complications. I will endeavor to be brief and simply take up the more important points.

Etiology.—One should always bear in mind the fact that any condition or disease which closes the eustachian tube for eight hours or more is almost certain to cause an otitis media. While it is true that we may have a primary inflammation in the tympanic cavity and attic from local pathological conditions, the fact must be borne in mind that nearly all the etiological factors come from the nasopharyngeal end of the eustachian tube. Any disease in the pharynx, nose or throat which causes a congestion or thickening of the mucous membrane in the neighborhood of the eustachian tube will cause a similar condition of the mucous membrane in the tube and thereby cause an obstruction of the tube at its smallest lumen or osseous portion. The diseases which are responsible for this closing of the tube are as follows:

1. Adenoids which are enlarged and frequently inflamed.
2. Acute rhinitis or cold in the head.
3. LaGrippe.
4. Acute infectious diseases, such as measles, scarlet fever, whooping cough and chicken pox.
5. Diphtheria, mumps, erysipelas of nose, throat or face.
6. Hypertrophic rhinitis and atrophic rhinitis with crust formation in the eustachian tube.
7. Any form of tonsillitis which causes a congestion around the tonsil, because the upper part of the tonsil frequently when enlarged lies practically against the tube.
8. Paralysis of the tensor paliti muscle from diphtheria, abscesses or tumors, may cause otitis media by inability of the tube to open itself in the act of swallowing.
9. Nasal operations.
10. Nasal douches, diving, etc.
11. Sinusitis of any of the nasal accessory sinuses.

The causes of acute primary infection of the tympanic cavity are:

1. Old chronic pathological condition.
2. Trauma such as a blow on the external ear rupturing the membrane, foreign bodies, cerumen and fracture of the base of the skull.
3. Furunculosis of external auditory canal when entirely obliterating the canal.
4. Tuberculosis, syphilis, measles, scarlet fever and smallpox.

Symptoms.—As we consider the symptoms of acute otitis media it is well to bear in mind that there are three distinct forms of this disease, namely:

1. Tubo tympanic closure, which results first in the absorption of the air in the drum cavity with retraction of membrane and later in accumulation of secretions in the tympanum, without inflammatory reaction.
2. Acute catarrhal otitis media, where the mucous membrane becomes congested and thickened by catarrhal inflammation.
3. Acute suppurative otitis media, where we have a violent inflammation, with suppuration in the drum cavity and rupture of the tympanic membrane.

In the first mentioned form of otitis media there is very little pain, if any. The patient may complain of a crackling sound in the ear and a feeling of fullness with more or less tinnitus and the hearing is somewhat impaired. There is at times a pain in the throat, on the side where the eustachian tube is closed. The membrane at first appears retracted, due to the absorption of the air in the tympanum, but later as the mucus accumulates the drum cavity becomes partly or entirely filled, causing the membrane to bulge slightly. One can frequently observe a hair line across the membrane at the upper level of the secretion in the tympanum, due to the slightly yellowish appearance of the drum membrane against which the secretions lie. This disease usually subsides by the eustachian tube opening up and draining the ear before inflammation sets in.

In the second form, that of catarrhal otitis media we have more severe symptoms. The pain is quite severe, deep-seated, with marked impairment of hearing, and considerable tinnitus. When the infection is limited to the region behind Shrapnell's membrane there is not much impairment of hearing. The temperature may rise a few degrees and the pulse is accelerated. The pain may radiate to the side of the head and to the teeth. Blowing the nose increases the pain. The head noises may be buzzing or pulsating in character. The patient usually speaks in a low voice, because he hears his own voice much louder. There is occasionally a tenderness over the mas-

toid on heavy pressure with the thumb. The pain nearly always comes on at night, due to the fact that when the patient sleeps he does not swallow frequently, and therefore does not open the eustachian tube as often as when up and around. There is also more blood in the membranes in the recumbent position.

The drum membrane is injected along the manubrium and anterior and posterior folds and there is more or less bulging. The landmarks are more or less obliterated. An ordinary watch cannot be heard more than a few inches from the ear. If the membrane ruptures or is incised the discharge is seromucous.

In the suppurative form, the above symptoms are greatly exaggerated. The pain is intense, the temperature may run high, 103 to 105. There is nearly always tenderness in the mastoid on heavy pressure. In children we may find great prostration, vomiting, delirium and mental apathy. The severity of the symptoms depends greatly upon other ailments, which have caused the otitis media, such as scarlet fever, measles, LaGrippe, etc. Examination of the blood reveals an increase in the leucocytes and the polys are increased. Transillumination shows the mastoid slightly darker than the opposite normal mastoid. The x-ray is almost valueless in acute inflammations of the mastoid where necroses and pus formation has not taken place.

The drum membrane before rupture is extremely red and the landmarks are entirely obliterated. There is at times a swelling of the upper posterior portion of the auditory canal so that the entire membrane cannot be seen. A slight exudate may form over the membrane so that there is some difficulty in differentiating between the membrane and the skin. When the membrane ruptures or is incised, there is a discharge of bloody pus. In all these forms of acute otitis media the Rinne test is negative and the Weber test is lateralized to the affected ear and the Schwabach is lengthened in the affected ear, providing there was no internal ear disease previously. The very low fork is not heard. By closing the normal ear with a wet finger the conversation voice is heard with the affected ear at a distance less than fifteen feet.

Differential Diagnosis.—Acute otitis media must be differentiated from myringitis, furunculosis of external auditory canal, acute tonsillitis and quinsy.

In myringitis the hearing is normal, the temperature is normal or nearly so and the eustachian tube is patulous. In furunculosis the hearing is normal if the canal is not entirely closed. Moving or pulling the auricle causes pain, while in otitis media it does not. A swelling can usually be seen in the canal. In tonsillitis the pain is referred to the ear, but on examination the ear is found normal. The same is also found in quinsy.

Prophylactic Treatment.—In all cases of acute rhinitis or in any of the acute infectious diseases or in any inflammatory conditions where the nasal passages are blocked up the physician should use every possible precaution to see to it that the nose is opened at least twice a day to provide good drainage, as by so doing he can be the means of preventing a large percentage of ear complications.

Nasal douches should be religiously avoided in these acute diseases. Small doses of aspirin even if the temperature is not high will often prevent ear troubles, in that it has some tendency to open the nostrils and promote drainage. Heat applied over the nose occasionally and massaging the nose and face will facilitate nasal respiration. The use of a vibrator with a soft sponge over the nose and face and over the mastoid will at times be beneficial in opening the nostrils and draining the ears in these acute inflammatory conditions.

For opening the nostrils once or twice a day, the following preparations will be found very valuable:

Cocaine hydrochloride .....gr. iij
Adrenalin ointment ..... ℥j

Sig.—Apply into each nostril a small quantity twice daily with the patient lying on his back.

One-half of 1 per cent. cocaine in adrenalin chloride 1/4000 may be used as a spray twice daily. This is not so easily administered in small children.

Anesthone cream contains synthetic cocaine and adrenalin. It is not toxic and may be used twice daily as a substitute for the above.

One hour after using any of the above preparations it is well to spray the nose with camphor and mentholated albolene, as it tends to keep the nose open a little longer. Care must be taken

in not using cocaine or adrenalin for a longer period than four or five days, as it has a tendency in some patients to irritate the mucous membrane. Vaccines are of some value in diphtheria, acute rhinitis and the infectious diseases in preventing otitis media.

Treatment.—As heretofore stated, earaches usually come on at night, and at the very first indication of pain in the ear the patient should get up and drink water or eat a little in order to make him swallow, as in the act of swallowing the tensor tympani and palati muscle contracts and opens the eustachian tube, thereby promoting drainage. In addition to this the nostrils should be opened with adrenalin and cocaine. One-half hour thereafter the patient should take a mouthful of water and while in the act of swallowing the nose should be held tightly shut, as in this way secretions are sucked out of the ear. The patient should then blow the nose with force and suddenly close the nose in the act of blowing. This will blow air up into the ear. Repeat this a half-dozen times or more in a half hour and then let the patient retire. If this is carried out immediately on the first sign of acute otitis media, you will be amazed to find how many cases you have bridged over without developing otitis media.

I do not believe in the administration of sedatives before the membrane has ruptured, for the same reason that the surgeon does not believe in giving morphin in cases of appendicitis, because it clouds the symptoms.

I am not unmindful of the soothing, and at times curing effects of a 5 per cent. solution of carbolic acid in glycerine, but frequently it clouds the symptoms, so that an ear is allowed to undergo serious pathological changes and rupture before doing an operation on the membrane. If with the above treatment the patient is not relieved in eight to twenty hours, an otologist should be consulted and the drum membrane incised, if there exists an acute otitis media.

I make one plea of the physicians, and that is, learn to make an early diagnosis before the drum membrane ruptures and have the drum cavity opened before serious pathological changes have taken place in the tympanum where the ossicles, facial nerve, oval and round windows are located. By so doing you prevent mastoiditis, brain complication, chronic suppurating ears and deafness.

I believe that the operation of opening a drum membrane should be performed by a physician who has experience in ear diseases.

1. Because it is an easy matter to injure the chorda tympani.

2. There is danger of severing the joint of the incus and stapes.

3. One can penetrate one of the windows leading to the internal ear and cause absolute deafness.

4. There are instances where the jugular bulb comes high up into the drum cavity with practically no bony covering and may thus be opened.

5. If the malleus or the anterior or posterior folds are seriously injured, the patient will never have normal hearing.

To perform this operation the auricle and the external auditory canal should be thoroughly cleansed and sterilized. Alcohol is probably the most convenient. The incision is made through the portion of the membrane which bulges and one should keep more to the periphery of the membrane.

I do not consider it wise to irrigate an ear before one is certain that the discharge is purulent, for the reason that if we irrigate an ear that is not infected, it will become infected. It is a well-known fact that if a drum membrane becomes perforated from a blow or a gun-shot explosion, it will usually heal without infection if left alone, whereas if it is irrigated it always becomes infected. I learned this from Professor Politzer personally and have never forgotten it.

Sterile cotton or gauze should be placed against the ear and should be removed and replaced in the same manner as one would dress a sterile wound. When the discharge becomes prevalent, this precaution is not necessary.

I am not an advocate of packing the canal with a strip of gauze for the following reasons:

1. In children it is very tedious to do this.

2. You frequently do not know whether you have the gauze against the membrane and consequently liable to leave a pocket between the gauze and the membrane.

3. One is apt to pack the gauze too tight and thereby impede the drainage.

4. It is impracticable to dress the ear more frequently than once in twenty-four hours, so that the entire circumference of the canal is bathed in pus more or less all the time.

I am of the opinion that frequent irrigations in

suppurating ears give the best drainage and keep the ear the cleanest. A twenty-five per cent. solution of argyrol, dropped into the ear after each irrigation, is non-irritating and at the same time a good antiseptic.

After the acute pain and inflammation have subsided the patient may be instructed to blow air through the ear by closing the nose, which may be done two or three times a day; sucking the secretions through the membrane with a suction bulb is also valuable.

Urotropine in the severe cases of suppurative otitis media is of considerable value, although it is difficult to prove this assertion.

Streptococci and staphylococci vaccine are of value to counteract the toxic effects upon the system, but are hopelessly inadequate to cure marked pathological conditions within a bony vault.

When the ear has stopped discharging the patient should be sent to an otologist for final examination to see whether there is any danger of adhesions forming between the drum membrane and the inner wall of the tympanum and to make sure that normal hearing will be restored.

If the tenderness over the mastoid region becomes worse or does not become less in three or four days after incising the membrane a simple mastoid operation should be performed to prevent deafness and further complications.

If the discharge has not stopped in four weeks and is still profuse at this time, a simple mastoid operation should be done to prevent chronic suppuration and deafness.

A chronic running ear is like a charge of dynamite in the brain, you cannot tell when it will explode.

I have not mentioned the general care of the patient, such as the bowels, kidneys and elimination in general, as well as the application of cold and heat, etc., as in my experience the physician usually knows more along this line than the otologist.

The complications of an acute otitis media are chronic suppurative otitis media, deafness, facial paralysis, labyrinthitis, mastoiditis, lateral sinus thrombosis, extradural abscess, intradural abscess, meningitis and brain abscess. Let us do our best to avoid these.

PUTTING CONTAGION OUT OF BUSINESS PERMANENTLY.

Here then is the solution, based on human nature, on common sense, and on the most scientific knowledge. Find, through the methods of epidemiology, of the laboratory, and of the vital statistician, skilfully combined by experts, these dangerous persons, whether sick or well—these only dangerous persons, those who carry on them or in them, germs of infectious diseases. Set all others free, but keep these persons, not in old-fashioned quarantine, but under such control that their discharges will not pass to others; and do not measure the length of that control by fixed time limits, blind and unjust as quarantine itself, but measure it wholly by the length of time the germs remain in or on the body. The moment that the germs have left those persons they are no longer harmful and they should be freed.

To do this properly means intimate attention and supervision of infectious persons by men who know their business and do nothing else. If one such man to every 20,000 persons began, tomorrow, everywhere, his work, infectious disease in ten years would have vanished and would have become mere history.

SUMMARY.

This, then, is the conclusion. The old ideas have passed; the new are no longer theories but facts; the methods they require are not untried; they have been practiced for years in many places. The details are worked out, the field is ready the scope and cost are known. All that remains is to apply the methods already developed to all infections, thus wiping them all out, once and for all. The way is clear, what remains is to follow it; the method is known, what remains is to carry it out; the thing we, as a race, for centuries have prayed for, can be done; all that remains is to do it.

Each generation of Americans pays now for infectious disease ten billion dollars at the least, *and has the diseases, too!* Why not pay one-tenth this sum and rid ourselves of all of them forever?—*Hibbert Winslow Hill, The New Public Health.*

LITTLE DAMAGE TO THE ABBOTT LABORATORIES.

A small fire with explosion of gases occurred April 21st on the top floor of one of the buildings of the Abbott Laboratories. Newspaper reports of the extent and character of this accident were grossly exaggerated. The damage was very small, consisting mainly of broken window panes and cracking of temporary partitions. The plant and machinery were injured but slightly, and the entire force went to work the next morning as usual. The Abbott Laboratories have issued a statement positively denying the newspaper reports that this firm is or has been engaged in the manufacture of ammunition or explosives.

In the treatment of nervous cases he is the best physician who is the most ingenious inspirer of hope.

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MAY 1916

Editorials

ALL ABOARD FOR CHAMPAIGN.

We hope every member of the society has made an effort to attend the annual meeting, and we feel sorry for those who can not attend. Can you, as a member, read the program published on another page, and say it does not interest you? The program of any one of the sections should be of sufficient interest to lure you to Champaign on the 16th.

Many of the members think they cannot afford to go. Can you afford to stay away? It is easily noticed that the more successful medical men are the men who attend not only the annual state meeting, but all of the medical conventions to which they can possibly go. Nothing pays them better, either financially or educationally.

Doctor, did you ever make that observation? The solution is not difficult. The American public want doctors who are versed in medical science of today, and it will not employ for its physician the man who cannot find time to attend medical conventions, but will employ those physicians who are abreast with the times, and whom they know to be students. Many of the new things to be presented at the annual meeting were not even thought of when you were a student, and the layman knows this as well as you. It is not well to let your clientele know that you do not attend the various medical societies, and that you are not in touch with the medical questions which interest other medical men.

Again, can you afford not to attend your State Society Meeting? We think not.

SOME FEATURES OF THE ANNUAL MEETING THAT PROMISE TO BE OF UNUSUAL INTEREST.

The committee of arrangements report that Tuesday evening, May 16, there will be given a "Twilight" concert by the Concert Band of the University of Illinois, under the leadership of Director Harding.

The University Concert Band is made up of about a hundred pieces and is one of the best, if not the very best, of its class west of the Alleghenies. The music rendered will be most enjoyable, and will include both popular and classic selections.

At 4:00 p. m. each day of the meeting the Illinois Brigade will give an exhibition drill on Illinois Field. The University of Illinois Brigade is the largest college military organization in the United States and in more ways than one has become famous.

The manoeuvers of this organization, under under the command of Major R. W. Mearns of the regular army, is a sight well worth seeing, and should be missed by no one who attends the meeting.

Wednesday evening, May 17, at the University Auditorium our own ("our-own," but alienist of the State Board of Administration) Dr. Zellar will have charge of a "Picture-Show" of especial interest to the fraternity and the laity alike.

At the opening of the Wednesday evening exercises, Professor Erb, for a short time, will "discourse sweet music" on one of the largest and finest organs in the Middle West, after which Dr. Edmund J. James, president of the University of Illinois, will deliver a short address.

The ladies in attendance will sit down to a luncheon near the noon-hour on Wednesday in the dining hall of the woman's building, Univers-

ity of Illinois. Their general headquarters will be in the parlors of the Beardsley Hotel, where they can meet their friends and assemble for any arrangements that may await them.

MEDICAL LICENSURE.

In the April number we commented upon "The National Board of Medical Examiners" as a voluntary examining board, and as such we are opposed to it.

It is absolutely a fact that the profession wants a different method of Licensure, one that permits the holder of a license to practice medicine where he chooses, within the jurisdiction of the United States. It is equally true that the profession wants a legal licensing body, one that is mandatory, not voluntary, one which must pass upon all practitioners of medicine and surgery, and this implies one with authority.

In forming the union of States certain inalienable rights were recognized and have been adhered to. Protection of the people is a police power, and as such is strictly under the jurisdiction of the state. This means that the licensing of physicians to practice medicine in a given state is the business of that state, and must be done by the designated officers of that state. This function of state government can not be taken over by the national government without an amendment to the national Constitution, and such an amendment, curtailing states' rights, is hardly conceivable at this time.

It would seem then that a national licensure, strictly speaking, in one of the desirable states, is unattainable, but while unattainable, a substitute reciprocity measure, when Medical Education has once been standardized, is not only easily obtained, but stands the test of legal strength. Furthermore, a reciprocity arrangement between the various states will be one of the best of implements with which to advance and standardize Medical Education. When the majority of the state licensing boards wants or agrees to reciprocal licensure, the detail of standardizing the various state examinations will be comparatively simple.

Sooner or later some form of licensure will be brought about which will permit a physician to practice medicine in other states than the one granting the license. When such a condition becomes a reality, the same reciprocal advantage should be permitted to the older physicians who graduated and were practicing medicine before state examinations were required, but who have been the upbuilders of medical education, and who have caused to be made the various practice enactments.

PETITIONS FOR CANDIDATES FOR THE LEGISLATURE.

Methods of filing petitions for members of the state legislature for either house or senate.

It is necessary to file with the secretary of state a petition bearing the signatures of one-half of one per cent. of the total qualified party vote at last election for governor in the respective senatorial districts. The petition to be filed with the secretary of state not more than sixty days, nor less than forty days before the primary.

Primary day is September 13, 1916; the first day for filing petitions is, therefore, July 15, and the last day is August 4.

THE MILITARY SURGEON.

With the April issue *The Military Surgeon* edited by Col. Edward L. Munson, Medical Corps, U. S. Army, and a large staff of Collaborators, appears in a new form, greatly enlarged and of improved appearance. With the expansion of the Military and Naval forces, and the general interest in "preparedness." *The Military Surgeon* intends to do its share in advancing the service of the medical departments.

This issue gives extensive news items pertaining to the Army and Navy, and in it are also discussed some of the problems of hospitals for the Army.

It is scarcely denied that more medical men should have a military training, and it is almost certain that more medical men will quite soon be required for the Army and Navy service. We hope *The Military Surgeon* will enter its new field in a way to be beneficial to those physicians who are not regularly in the Army or Navy service, but who may be called upon for such service in war emergencies.

ANNUAL MEETING AND ALUMNI DINNERS.

One of the pleasant features of the annual meeting last year was the alumni dinners. Scarcely a man was there whose Alma Mater was not

represented with a gathering. All of these dinners were large and enthusiastic affairs, where the class men of gone-by years again greeted each other and dined together, where the old college songs were sung, where many affairs of the college days were recalled, and stories told at the expense of some of the fellows. No feature of last year's meeting was more enjoyed by all of the doctors in attendance.

At each of these dinners last year a request was made that they be repeated this year. If you do not attend these dinners this year you will miss one of the reunions of class men which you will always regret.

Arrangements are being made for the several reunions on Wednesday, May 17. Unfortunately we have not been informed at what time or place each of these dinners will be given, but notice will be given at the meeting.

REUNION RUSH ALUMNI ASSOCIATION.

A reunion of the Rush Alumni Association will be held at Champaign, Ill., at the coming meeting of the Illinois State Medical Society. Luncheon will be served at the New Inman Hotel, at the noon-hour on Wednesday, the second day of the meeting. Your attention will be directed to this gathering at the time of the state meeting.

P. & S. GRADUATES, THIS WAY!

At Champaign, May 17, during State Society meeting, a rousing get-together banquet. Don't miss it!

Shake the dust of routine out of your hair, old man. Take a fresh shave, a small roll of long green, and beat it—not to Canada, but to Champaign, where other featherless bipeds of the same brand will come by trolley, by steam, by automobile, by Ford, by Heck!

P. & S. men know how to eat, to sing, to talk, and the good "spielers" will be there in force.

This is the time to do that intellectual spring house-cleaning. Sidestep the office hour for a day or two, and give your competitor a chance, poor devil.

Come down and brush up your knowledge of new things in medicine and old friends in fraternity.

Seriously, do not forget that Champaign is the home of our University Mother. This should be a special homecoming occasion, and you will be surprised and delighted at the number who will be there of those who helped to pass you up.

As this is going to be a record-breaking affair, the committee should have some line upon the number coming.

Kindly send notice by May 10, that you intend to be there, to Dr. C. L. Gulick, Champaign, Illinois.

Fraternally yours,

MARTIN M. RITTER,
Chairman Banquet Committee.

Public Health

INJUNCTION AGAINST VACCINATION DISSOLVED.

About the middle of March there being some 90 cases of scarlet fever and 40 cases of smallpox in the city of Peoria, the city council, at the suggestion of the health commissioner, as a measure for the suppression of the outbreaks of these diseases, adopted an ordinance, to be in effect for 60 days from date of passage, prohibiting children under 16 from attending theatres, picture shows and other places of public amusement; excluding unvaccinated children from public and private schools and requiring certificates of vaccination of those admitted; and requiring the disinfection at least once a week of all theatres, picture shows and other places of public amusement and of street cars.

A suit for an injunction was immediately begun in the circuit court by a resident of Peoria, who claimed that his children, who were not vaccinated, would suffer irrepairable damage if excluded from the schools. The injunction being denied by the circuit court, an appeal was taken to the supreme court and an injunction was granted by one of the justices in vacation without notice to the city of Peoria.

In April, after hearing arguments by Mr. Radley, Corporation Counsel of Peoria and the Attorney-General on a motion to dissolve the injunction, the motion was allowed and the injunction dissolved.

The action of the Supreme Court in dissolving this injunction is a decided victory for the State Board of Health at whose request the Attorney-General joined in the motion. This decision confirms the contention of the Secretary, Dr. C. St. Clair Drake, that by ordinance cities and villages

may exclude unvaccinated children from the schools when smallpox exists in the community and there is danger of its spread.

ELEVATING EXAMINATION STANDARDS

"For Other Practitioners."

After September 1, 1916, all candidates for Other Practitioners' state certificates will be required to take the examination in all subjects in which physicians and surgeons are examined, excepting surgery, obstetrics, materia medica and therapeutics, Other Practitioners being barred by law from engaging in the practice of the branches of medicine covered in the excepted subjects.

Furthermore, candidates for Other Practitioners will be required to write the same subjects and the same questions which are employed in the physicians' examination, and, in addition, they will be graded on a special paper "Education and Training."

This is considered as the most important step yet taken by the Illinois State Board of Health in the elevation of medical licensure examination standards.

On the same date a new schedule of examination goes into effect for midwives, the requirements being more rigid than heretofore.

SANITARY ENGINEERING BUREAU NOW ESTABLISHED IN STATE BOARD OF HEALTH.

A Summary of Its Aims and Purposes.

The last legislature authorized the establishment of a small engineering bureau of the State Board of Health and made a modest appropriation therefor. In order that the work might be gotten under way as early as practicable, temporary appointments were made for the four positions created, namely, a chief sanitary engineer, two assistant engineers, and one stenographer, and temporary offices were established at the University of Illinois.

The temporary chief sanitary engineer served until December first, and returned to the service of the Board March 1, 1916, upon being certified for a permanent appointment by the State Civil Service Commission. One of the temporary appointees, as assistant engineer, has remained with the service throughout, while the other resigned on January 1. The position thus vacated has not been refilled owing to the difficulty of finding a suitable candidate at the salary appropriated.

On March 1, the Bureau moved to Springfield and is occupying temporary offices in the state arsenal until permanent offices and laboratories can be made ready on the sixth floor of the north wing of the state capitol. Primarily due to delay in securing permanent quarters, the new bureau is not prepared to exercise all of its functions, but nevertheless is actively engaged in carrying on sanitary engineering work of great benefit to the health and welfare of the people of Illinois.

That the general public may become acquainted with the work of the new bureau and avail itself of the services offered, this article will outline briefly the activities with which the Bureau is at present engaged. These activities may be enumerated in the approximate order of their importance as follows:

1. Control over the installation of water supply and sewage systems;
2. Sanitary surveys;
3. Supervision over the sanitation of common carriers;
4. Study of city wastes collection and disposal and street cleaning;
5. Examination of swamp and overflow lands within the state with a view of encouraging their reclamation for both health and profit;
5. Investigation of methods of heating and ventilating with special reference to their applicability to schools, public buildings, and auditoriums;
7. Sanitary inspection of public school buildings;
8. Typhoid fever investigations;
9. Public addresses on sanitary engineering topics;
10. Informal advice by correspondence.

Control over the installation of water supply and sewerage systems.—With the recollection of the terrible cholera epidemic in Hamburg in 1892 which involved approximately 16,000 cases and 8,000 deaths, and which was traceable directly to the pollution of the public water supply, and with the recollection of more recent epidemics and high death rates from typhoid in our own country, also traceable to public water supplies, no argument is necessary to show that control over the quality of public water supplies is of tremendous consequence to the public health. Likewise, the terrible ravages of pestilence that swept through Europe before sewerage systems were in common use in urban communities, is equally convincing proof of the necessity of exercising control over the installation of municipal sewerage systems.

In attacking this branch of the work of the new bureau, it is recognized that results can be obtained very much more readily when water works and sewerage systems are being projected than after they have been constructed. Accordingly the Board has adopted, under the authorization contained in its enabling act, rules and regulations requiring the written approval of the State Board of Health for plans and specifications for proposed installations of water supply and sewerage or proposed modifications and additions to existing water supplies and sewerage systems. For reference, these rules and regulations are inserted at the end of this article.

State control over the installation of public water supplies and sewerage systems is not a new idea and is already in force in all of the larger and more populous states in the country. Already the Bureau

has considered sixteen water supply and sewerage projects and in every instance the Bureau's work has been locally regarded as a service rather than an interference of state authority.

Sanitary Surveys.—Many growing communities have gradually and insidiously developed gross insanitary conditions, especially as these relate to improper sewerage, foul privy vaults, leaching cesspools, polluted private wells, refuse-clogged alleys and back yards and insanitary buildings. That such communities may be aware of the danger which threatens the municipal public health, the board is urging that sanitary surveys be made which are in effect, inventories of the community sanitary status. When the facts are made known, civic pride usually becomes aroused and the public not only demands, but it is willing to pay for better health administration and public improvements.

So many insistent complaints relative to improper sewerage and sewage disposal and relative to public nuisances have come to the State Board of Health that the Bureau has felt impelled to respond by making sanitary surveys of limited scope in fifteen communities in various parts of the state, but unfortunately, the small number of engineers in the department and small appropriations do not permit the engineering bureau on its own initiative and without assistance to make thoroughgoing sanitary surveys which are necessarily laborious and time-consuming. The department is, however, willing to plan and supervise such sanitary surveys whenever a municipality will agree to furnish the necessary assistance. Upon application to the Board, the chief sanitary engineer will visit any municipality for the purpose of making a preliminary inquiry and advising with local authorities or local civic organizations with reference to ways and means for conducting sanitary surveys.

Only one reasonably thorough co-operative sanitary survey has thus far been made, namely, at Petersburg, and this was stimulated by a typhoid fever epidemic. Additional surveys are being planned for Champaign and Urbana, Mattoon and Jacksonville, but have not yet been begun.

Inspections were made by the engineering bureau of several chautauqua and fair grounds, notably the grounds at the Old Salem Chautauqua, where the water supply was responsible for a large outbreak of typhoid fever. The State Board of Health has been impressed as a result of these inspections with the necessity of investigating sanitary conditions of chautauqua grounds, fair grounds, summer resorts and picnic places throughout the entire state. In the nature of the case, it is not practicable to secure local assistance in making these investigations and it will, therefore, be necessary for the engineering bureau to undertake the entire work as rapidly and as thoroughly as its present limited means will permit. This work will be begun within the next few weeks and it is hoped that the sanitary condition of the more important summer resorts and chautauqua grounds can be made known to the public before the next vacation season.

Supervision over the sanitary conditions of common carriers.—Many common carriers, including railroads and steamboat lines, operating within the state have been more or less negligent of sanitary requirements. This applies particularly to railroad construction camps, railroad stations, and toilets and water supplies on cars and steamboats. To correct these conditions so far as the present means of the State Board of Health will permit, a comprehensive survey will be made of the railroad lines and steamboats with a view of establishing rules and regulations governing sanitation of common carriers. The Board has not a sufficient number of inspectors to insure the proper observance of any rules and regulations that may be adopted, and until larger appropriations are available, dependence must be placed on the co-operation of local authorities to secure desired results.

To date, it has been practicable to inspect only a portion of the lines of the Illinois Central Railroad.

Study of city wastes collection and disposal and street cleaning.—The last legislature enacted a law which permits municipalities to raise special funds for the collection and disposal of garbage. This law was passed at the earnest solicitation of many city officials throughout the entire state, who have found the problem of garbage and refuse collection and disposal, or, as it may be more appropriately termed, the problem of municipal house cleaning, a most acute and difficult one to handle. Many municipalities are endeavoring to determine how the funds made available by the new law can be most advantageously used and it would seem eminently appropriate for the State Board of Health to study the problem of city wastes collection and disposal with a view to giving engineers and superintendents of city wastes departments maximum assistance. Three appeals for advice relative to city wastes collection and disposal have been thus far received and reported upon.

Examination of swamp and overflow lands of the state with a view to encouraging their reclamation for both health and profit.—There are over 11,000 acres of unclaimed swamp and overflow land in the State of Illinois which represent not only a great economic loss, but a distinct menace to the health of the state. It is true that yellow fever has been practically exterminated from this section of the country, but malaria has not. This latter disease claims a number of deaths each year, though generally regarded as a mild and non-fatal malady. It is less important to the community because of the deaths that result than because of the industrial inefficiency of the populations infected, for it is estimated that the efficiency of workmen suffering with the disease is reduced from 40 to 90 per cent. To promote the reclamation of swamp and overflow land and to guide the development of such reclamation projects along lines that will allow the maximum sanitary advantage it is the purpose of the engineering bureau to gather and place in its files full information regarding the reclaimable lands in Illinois.

Investigation of methods of heating and ventilating

with special reference to their applicability to schools, public buildings, and auditoriums.—Heating and ventilating, or to use a more expressive and up-to-date phrase, air conditioning, has long been recognized as an important factor in sanitary improvement, yet great difficulty has been encountered in understanding clearly its import and defining its fundamental principles. As the State Board of Health is called upon frequently to inspect school buildings and auditoriums, it will be necessary to give special attention to the subject of air conditioning, through the medium of experimental investigations, so that it may be in a position to give competent advice when called upon to do so. Present funds of the department do not permit of this work being carried out on an extensive scale at once, but a careful study of the subject and the results of experimentation elsewhere place the department in a position to give local health authorities and school supervisors the best present available information.

Sanitary inspection of public school buildings.—A new law enacted by the last legislature requires the State Board of Health to inspect public school buildings when requested to do so by county superintendents of public instruction. Seven public inspections have already been made and these have been carried out with great thoroughness.

The present outlook would indicate that enough requests for inspections of school buildings will be made to keep the entire engineering department busy on this work alone. Accordingly, some means for curtailing this work at least until greater appropriations can be obtained had to be found. To this end, the chief sanitary engineer is preparing, in co-operation with the office of the state superintendent of public instruction, the office of the state fire marshal and the state architect, standard requirements for schools of various classes. These requirements are being drawn up in sufficient detail to enable local school authorities to make all ordinary inspections, themselves.

Further temporary curtailment of work of this class will be effected through the co-operation of deputy state fire marshals who will combine with their inspections of fire hazards, inspections with reference to certain sanitary phases of school construction and maintenance.

The matter of school sanitation is of such tremendous importance to the welfare of the rising generation that the State Board of Health should have ample funds to maintain its own inspectors and to employ additional engineers for the purpose of examining and reporting upon plans for all proposed school houses before contracts are awarded.

Typhoid fever investigations.—Investigations of typhoid fever have to date taken perhaps the greater part of the time of the engineering bureau. Among the most important of these investigations was that which centered about the Old Salem chautauqua near Petersburg which was definitely traced to polluted water used for drinking purposes at the chautauqua grounds. More recently, much time has been spent on an investigation of typhoid fever at Champaign and Urbana which quite clearly resulted from infected oysters eaten raw. Other epidemics investigated occurred at Marshall, traceable in part to infected milk; at East Moline, traceable to polluted well water, and at Oak Park, traceable to a typhoid carrier at a high school cafeteria.

Epidemiological work is not normally a function of an engineering bureau, but typhoid fever investigations so often require a knowledge of engineering matters, especially as these relate to public water supply and sewerage, that some of the most important typhoid fever investigations in the country have been carried out primarily by engineers. In the future, epidemiological work will be handled by the state epidemiologist with such assistance from the engineering bureau as may be from time to time required.

Public addresses on sanitary engineering topics.—Very little can be accomplished along sanitary lines in the average Illinois community until the public is well informed as to the nature of any particular undertaking that may be proposed. To assist local authorities in securing public support for such undertakings as the establishment of public water supplies, water purification works, sewerage systems, sewage treatment works, city wastes collection and disposal systems, street cleaning organizations and sanitary school buildings, the State Board of Health will be pleased to have representatives of its engineering bureau visit local communities for the purpose of delivering public addresses. These addresses are usually enhanced in interest by lantern slide illustrations.

Informal advice by correspondence.—The State Board of Health receives numerous letters making inquiry relative to suitable methods for disposing of sewage, protecting private water supplies and securing improvements in sanitary conditions generally. All such communications are carefully considered and fully answered both by letter and by forwarding suitable literature. These inquiries have averaged about 100 per month during the few months that the Bureau has been established.

Summary.—The engineering bureau desires to be of greatest possible assistance in improving the health conditions of the state and invites local authorities and civic organizations to avail themselves of its services. Limited means, of course, prevent the extended activities that such a department should be able to undertake, but it is expected that the department will sufficiently justify its existence to induce the next legislature to very materially increase its appropriations.

RULES RELATING TO PUBLIC WATER SUPPLIES, SEWERAGE SYSTEMS AND ICE SUPPLIES.

Adopted April 5, 1916.

Rule 1: No municipality, district, corporation, company, institution, persons or person, shall install or enter into contract for installing, water works or sewers to serve more than 25 persons until complete

plans and specifications fully describing such water works or sewers have been submitted to and received the written approval of the State Board of Health and thereafter such plans and specifications must be substantially adhered to unless deviations are submitted to and receive the written approval of the State Board of Health.

Rule 2: No municipality, district, corporation, company, institution, persons or person, shall make or enter into contract for making, any additions to or changes or alterations, in any existing water works serving more than 25 persons, when such additions, changes, or alterations involve the source of supply or means for collecting, storing or treating the water, until complete plans and specifications fully describing proposed additions, changes or alterations have been submitted to and received the written approval of the State Board of Health and thereafter such plans and specifications must be substantially adhered to unless deviations are submitted to and receive the written approval of the State Board of Health.

Rule 3: No municipality, district, corporation, company, institution, persons or person, shall make or enter into contract for making, alterations or changes in or additions to any existing sewers or existing sewage treatment works serving more than 25 persons, until complete plans and specifications fully describing such alterations, changes or additions have been submitted to and received the written approval of the State Board of Health, and thereafter such plans and specifications must be substantially adhered to unless deviations are submitted to and receive the written approval of the State Board of Health.

Rule 4: Any municipality, district, corporation, company, institution, persons or person, owning or operating a water purification works or sewage treatment works, shall submit to the State Board of Health monthly records showing clearly the character of effluents produced.

Rule 5: No municipality, district, corporation, company, institution, persons or person, shall offer lots for sale in any sub-division, unless within the boundaries of an area incorporated as a municipality or sanitary district, until plans for sewerage, drainage and water supply have been submitted to and received the written approval of the State Board of Health, and thereafter such plans and specifications shall be substantially adhered to unless deviations are submitted to and receive the written approval of the State Board of Health.

Rule 6: No natural ice shall be furnished or vended to the public for domestic purposes until the source of the ice supply has received the written approval of the State Board of Health, which approval is revocable upon evidence being presented or discovered of undue contamination entering the source.

TUBERCULOSIS NOTES.

Experiments with tuberculin by mouth have been successful in glandular tuberculosis.

In the last decade the death rate from tuberculosis has dropped 25 per cent.

An irritable bladder which persists after regular treatment for cystitis should be examined for tuberculosis.

Some chronic backaches turn out to be tuberculosis of the kidneys.

Apical Predisposition.—The pulmonary apices are firmly grasped by the ossifying first costal cartilages (Freund); their ventilation and circulation is interfered with and a fertile soil for the implantation of the tubercle bacillus has thus been created. Apical Tb. rarely occurs in children because their apices are situated within or underneath the upper thoracic aperture, whereas the apices of the adolescent grow up through the aperture and are being damaged by its anomalies. Senile phthisis runs a more favorable course because the degenerated cartilages give way under the traction of the muscles and thereby permit of a better ventilation and circulation of the apices. Apical Tb. does not occur in animals because all parts of the lung respire uniformly.—*Hart: Betrachtungen ueber die Entstehung der tuberkuloesen Lungenspitzenphthise. Zeit schr. feur Tb., 1915, Band 24, Heft 2 (transl. from Int. Centralblatt feur Tb. Forschung).*

Etiological Classification of Symptoms.—The usual stigmata are not necessary for the diagnosis of early Tb. Most patients are suffering from renewed activity in an old focus or from extension to new areas. The attacks which are frequently characterized as grippe, bronchitis, neurasthenia, etc., should, when repeated, lead us to suspect Tb. Some patients do not give a history of previous disease or prodromes. This sudden explosive type of Tb. is usually overlooked.

The early symptoms according to their etiology fall in three groups (1) those caused by toxins; (2) those of reflex origin; and (3) those due to the tbc. process *per se*. Some of the symptoms have a double etiology.

(ad 1) Malaise, run-down feeling, lack of endurance, nervous instability, loss of weight, indigestion, night sweats, and fever. The temperature curve is of great importance for early diagnosis.

(ad 2) Hoarseness, indigestion, loss of weight, pains in chest (particularly in shoulders and upper parts of lungs), tickling in larynx, cough, rapid pulse, flushing of face. The chest pains are more common in old lesions. They usually run in the nerves supplying the shoulder girdle, the interscapular and upper intercostal areas.

(ad 3) Frequent and protracted colds, hemoptysis, pleurisy, fever, sputum. Either of the first two, plus one or more of the symptoms of this group, especially with fever and a positive cutaneous test, allow a positive diagnosis of active Tb.—*Classification of symptoms of early pulmonary Tb. based on their etiology, F. M. Pottenger, St. Paul Med. Jour., Vol. 17, No. 1, 1915.*

Auto Sparks and Kicks

IT WAS A LUCKY THING.

IT MIGHT HAVE SMASHED THE CAR ALL TO PIECES!
—THAT FAT MR. STINE WAS STANDING IN FRONT OF THAT TELEPHONE POLE WHEN THE "TIN LIZZIE" SKIDDED.

—Courtesy the Chicago Herald.

PRIDE TAKES USEFULNESS OUT OF OLD AUTOS THESE DAYS.

False pride cuts most automobiles down in their prime of usefulness.

The name "used car" has been allowed, in the rushing growth of the industry, to grow into a synonym for something not the best, and the damage has been like that done by a two-edged sword.

In the first place, there isn't a car bought which isn't, in a sense, a "used car." No machine is turned over to the purchaser which has not had its motor run in a thorough test and its other parts all tried out. True, the cars haven't been toured, unless in the case of difficult delivery where the dealer had driven then home from the factory under their own power.

USED—HOW MUCH?

The amount of usage has been lost sight of. And this is the substance of the whole question.

How much usage makes an automobile a "used car?"

When does a "used car" come to deserve the opprobrium which carelessness or indifference has allowed to be attached to the name?

If a prospect likes a car, has half a dozen demonstrations in it, then finds a little defect which, though remedied at once, cancels his desire for the machine, his use of the car doesn't make it a "used car."

The demonstrator used by a dealer isn't a "used car" except to a personal friend of the dealer, who gets the dealer's commission off the price in charity—a charity which is charitably cloaked in the expression of the dealer to his friend: "It's a used car; you can have it for so much off."

Yet a car purchased ouright and used by the owner the same length of time comes back for resale a "used car."

WHEN CAR IS BEST.

The answer to the second question should arrest the attention of those guided by false pride.

A racing car is at its best during its second and third year of hardest usage. An ordinary car is built for 200,000 miles' travel, with the customary 14 per cent. factor of safety. It is a steady driver who puts his car through 20,000 miles a year. It is two and a half years, then, before the car has run through a fourth of its intended usability.

Why, then, should it be termed a bad investment at that stage of its existence? Generally because of $25 worth of paint.

Under present building practices models will differ in appearance only a little. But paint will wear dull or off, a fender will be bent, or a radiator dented.

While no one questions the fact that the motor of a car used a year or two conservatively is just coming to its prime of usefulness, its best period of smooth, sweet running, yet the missed paint, the dented radiator or bent fender, mark the machine for a "used car" fate.

Appearance, then, is the factor which destroys a car's newness, its appeal to intelligent investment.

How can this be corrected?

Just around the corner off any street crossing automobile row on Michigan boluevard and adjoining almost any garage is a place where the radiator can be repaired and the fender put in perfect condition for a trifling fee.

Half a dozen body-makers in the city and many more body painters will give the car a new appearance. The body builder also will refurbish the upholstery, put in new floor carpets or adjust new seat covers, sandpaper and repaint the steering wheel and adjust the electric wiring; then the car practically is new.

"Why don't persons wanting a car buy a used machine, and have this done?"

GROVER F. SEXTON.

Society Proceedings

Illinois State Medical Society

SIXTY-SIXTH ANNUAL MEETING.

CHAMPAIGN, MAY 16, 17 AND 18, 1916.

ORDER OF PROCEEDINGS.

Registration office in the Exhibit Hall in the basement of the Masonic Temple.

First Day—Tuesday Afternoon.

2:30—Call to order of the Society in General Session by the President, Chas. W. Lillie of E. St. Louis. Parlor of Masonic Temple.

Report of Chairman on Committee on Arrangements, C. B. Johnson, Champaign.

3:00—Call to Order of Secretary's Conference, by Elizabeth Ball, President, of Quincy. Parlor of Masonic Temple.

First Day—Evening.

8:00—Call to Order of the House of Delegates by the President, Chas. W. Lillie. Parlor of Masonic Temple.

Second Day—Wednesday Morning.

9:00—Call to Order of Sections One and Two, for reading and discussion of the papers of the program. Main Lodge Room of Masonic Temple.

Call to Order of the Section on Eye, Ear, Nose and Throat, Joseph Beck of Chicago, Chairman. Parlor of Masonic Temple.

Call to Order of Section on Public Health and Hygiene by M. W. Snell of Litchfield, Chairman. Blue Lodge Room of Masonic Temple.

12:30—Adjournment for Luncheon.

Second Day—Afternoon.

2:00—Call to Order of Society in General Session by the First Vice-President, F. S. O'Hara of Springfield. Main Lodge Room, Masonic Temple.

President's Address, C. W. Lillie of E. St. Louis.

2:30—Reconvening of the Sections.

Oration in Surgery, B. Merrill Ricketts of Cincinnati.

Third Day—Thursday Morning.

9:00—Call to Order of Section One and Two for the Continuation of Program.

11:00—Oration in Medicine, W. B. Bannister, Medical Corps U. S. Army, Chicago.

12:30—Adjournment for Luncheon.

Third Day—Afternoon.

1:30—Reconvening for Continuation and Finishing of Program.

4:00—Call to Order in General Session by the President to Receive the Report of the House of Delegates.

Induction of President-Elect.

5:00—Final Adjournment.

ENTERTAINMENT FOR THE MEMBERS AND LADIES, ARRANGED BY THE CHAMPAIGN COUNTY MEDICAL SOCIETY.

Tuesday, May 16.

6:30 p.m.—Twilight Band Concert, South Campus, University of Illinois, A. A. Harding, Director.

Wednesday, May 17.

1:00—Luncheon for Ladies, Woman's Building, University of Illinois.

7:00—Organ Recital at Auditorium, University of Illinois.

8:00—Moving Pictures of Illinois as Exhibited at the Panama Exposition. Address by President Edmund J. James, under Supervision of George A. Zeller, M. D., Board of Administration, at Auditorium.

Thursday, May 18.

2:00—Official Visit to University of Illinois.

Regimental Drill each day at 4:00 p. m.

OFFICIAL PROGRAM.

SECTION ONE.

E. J. Brown, Chairman.....Decatur
H. W. Cheney, Secretary.....Chicago

SECTION TWO.

G. W. Green, Chairman.....Chicago
Don Deal, Secretary.....Springfield

Wednesday, May 17, 9:00 A. M.

Chronic Appendicitis from the Standpoint of the Internist.....J. G. Friedman, Chicago

Discussion—Alfred C. Croftan, Chicago.

Appendicitis from the Standpoint of the Ordinary Surgeon.....Clark A. Buswell, Chicago
Discussion—E. H. Oschner, Chicago.
Dan. Eisendrath, Chicago.

The Influence of Mixed and Secondary Infections in Pulmonary Tuberculosis in Man.....
.....Roswell T. Pettit, Ottawa
Discussion—O. W. McMichael, Chicago

Management of Empyema in Children.....
.....A. M. Miller, Danville
Discussion—Frederick Dyas, Chicago;
Wm. R. Parkes, Evanston.

Malignant Endocarditis.....
.....Albert H. Baugher, Chicago
Discussion—Chas. H. Lovewell, Chicago;
C. Martin Wood, Decatur.

Surgery from the Patient's Viewpoint.....
.....Clifford U. Collins, Peoria
Discussion—Carl Black, Jacksonville;
O. Theodore Roberg, Chicago

The Clinical Significance of Vicarious Gastrorrhagia .....
....Frank Smithies and Robt. Bowen, Chicago
Discussion—Milton H. Mack, Chicago.

Wednesday, 2:00 P. M.

President's Address.....
.....Charles W. Lillie, East St. Louis

Oration in Surgery. Anesthesia from the Dawn and Its Relation to Surgery.....
.....B. Merrill Ricketts, Cincinnati, Ohio

X-Ray Interpretation .....
.....Fred Suma O'Hara, Springfield
Discussion—Frank Smithies, Chicago;
Edward S. Blaine, Oak Park

Value of X-Ray in Differential Diagnosis in Gall Bladder Lesions.....
.....James T. Case, Battle Creek, Mich.
Discussion—A. W. George, Boston, Mass.;
Walter Bain, Springfield.

Survey of Opinions and Experience in First Aid....Joseph C. Bloodgood, Baltimore, Md.
Discussion—S. C. Plummer, Chicago;
H. C. Mitchell, Carbondale.

Medical Legislation, Recent and Contemplated
.....C. St. Clair Drake, Springfield
Discussion—L. C. Taylor, Springfield.

Surgery of the Colon....A. J. Oschner, Chicago
Discussion—E. Willys Andrews, Chicago;
Karl F. Snyder, Freeport.

Thursday, May 18, 9:00 A. M.

Mechanical Kinks of the Back.....
.....P. B. Magnuson, Chicago
Discussion—Don Deal, Springfield;
Edwin W. Ryerson, Chicago.

Importance of Infections Originating in the Post-Nasal Space in Infants and Children. Report of Cases....George E. Baxter, Chicago
Discussion—Chas. B. Younger, Chicago.

Symposium. (A) Splenectomy in Pernicious Anemia.....P. M. Parrish, Decatur

Symposium. (B) Splenectomy in Peculiar Types of Splenomegaly.
Allen B. Kanavel, Chicago.
Discussion—A. S. Wall, Champaign;
M. L. Goodkind, Chicago.

Oration in Medicine. The Medical Mechanism for War in the United States.....
Col. W. B. Bannister, Medical Corps, United States Army, Chicago.

Efficiency in Medical Practice.....
.....Cecil M. Jack, Decatur

A Clinical Study of Pneumonia, with Special Reference to Prognosis..Frederick Tice and R. F. Herndon, Chicago.
Discussion—George Parker, Peoria.
Edward F. Wells, Chicago

Traumatic Hernia.....C. W. Hopkins, Chicago
Discussion—W. H. Bohart, Chicago;
Otis O. Stanley, Urbana.

Radium Therapy. Remarks on the Use of Radium in Deep Seated Malignant Disease and in Dermatology. (Illustrated with lantern slides) .....Frank E. Simpson, Chicago
Discussion—Arthur W. Stillians, Chicago.

Fascia Transplantation..Dean D. Lewis, Chicago
Discussion—John B. Murphy, Chicago;
Robert Noble, Bloomington.

The Preparation and Use of Vaccines in Chronic Bacterial Infections.....
.....Adolph Gehrmann, Chicago
Discussion—A. H. Baugher, Chicago.

Military Preparedness from a Surgical Standpoint. My Experience as Post Surgeon at Camp Tanner During the Spanish-American War .....Geo. N. Kreider, Springfield
Discussion—Jacob Frank, Chicago;
A. J. Butner, Harrisburg.

Therapeutic Starvation in Infancy.....
.....Joseph Brennemann, Chicago
Discussion—Clifford G. Grulee, Chicago.

Angina Pectoris, with Report of Cases.....
.....S. E. Munson, Springfield

The Treatment of Paresis by Intraventricular Injections.....C. F. Read, Peoria
Discussion—William G. Stearns, Chicago; Ralph C. Hamill, Chicago.

SECTION ON PUBLIC HEALTH AND HYGIENE.

M. W. Snell, Chairman.....Litchfield
Gustav F. Ruediger, Secretary.....La Salle

Wednesday, May 17, 9:00 A. M.

The Health Department Under the Commission Form of Government.....
.....F. C. Vandervort, Bloomington

The Importance of Germ Carriers in the Propagation of Diphtheria.....
.....G. F. Ruediger, La Salle

The Classification of Medical Colleges and Its Effects on Medical Education and the Medical Profession in America.....
.....Benj. H. Breakstone, Chicago

An Epidemic of Typhoid Fever Due to the Use of a Polluted Water Supply at Old Salem Chautauqua.....Harry F. Ferguson, Assistant Engineer, State Board of Health

Raw Oysters as Carriers of Typhoid Fever....
Professor Paul Hanson, Chief Engineer, State Board of Health

Symposium on Child Welfare.

(A) Duty of the State to the Growing Child
.....Charles J. Whalen, Chicago

(B) Natural Feeding of Infants.....
.....J. W. Van Derslice, Oak Park

(C) Use of Clean, Raw Cow's Milk in the Feeding of Infants.....
.....Grace H. Campbell, Chicago

(D) Weaning and Subsequent Feeding....
.....J. C. Kraft, Chicago

The Handkerchief as a Sanitary Appliance...
.....Adolph Gehrmann, Chicago

Convalescent Hospitals. Their Economic Value.....John A. Robison, Chicago

Sanitary Legislation, Recent and Contemplated.....C. St. Clair Drake, Springfield

The County Tuberculosis Sanitarium and Its Effects on the Community.....
.....George T. Palmer, Springfield

Results With Artificial Pneumothorax After Four Years' Use of the Method.....
.....L. S. Peters, Albuquerque, N. M.

ILLINOIS STATE MEDICAL SOCIETY.

EYE, EAR, NOSE AND THROAT SECTION.

CHAMPAIGN, MAY 16, 17 AND 18, 1916.

The Section Program will be exceedingly interesting, both from a scientific and social standpoint. Tuesday, May 16, the entire day—from 10 a. m. to 5 p. m.—will be devoted to Clinics and Demonstrations at the Burnham Hospital. Both operators and operations will be selected with the idea in mind of providing an authoritative demonstration of operations which are of particular interest to the members of the section. Tuesday evening, May 16, the section banquet will be held at the Beardsley Hotel at 7 p. m. This promises to be an exceedingly attractive event. A number of speakers will be on the program, and in addition some special features of entertainment will be provided. Wednesday, May 17, the entire day beginning at 9:30 a. m., will be devoted to the reading of papers. The place of meeting is the Masonic Temple. The list of papers provided is exceedingly attractive, and will prove of great interest. During the meeting days special entertainments will be provided by the local committee. The members of the section are earnestly urged to attend both the clinic on Tuesday, May 16, and the section work on Wednesday, May 17, and thereby contribute to the success of the meeting.

PROGRAM.

EYE, EAR, NOSE AND THROAT SECTION.

1. Two Years' Clinical Experience on the Trachoma Question in Southern Illinois..
....Edward E. Edmondson, Mt. Vernon, Ill.
Discussion opened by Oliver Tydings, Chicago

2. Experimental Reproduction of Accessory Sinus Suppuration for Teaching Purposes....M. F. Arbuckle, East St. Louis, Ill.
Discussion opened by Albert H. Andrews, Chicago

3. The Capsule of the Faucial Tonsil, Its Structure and Significance.....
.....Elmer L. Kenyon, Chicago
Discussion opened by Chas. H. Spears, Champaign, Ill.

4. Corneal Ulcers and Their Treatment....
.....Wesley Hamilton Peck, Chicago
Discussion opened by J. Sheldon Clark, Freeport, Ill.

5. The Ear in Diabetes; With Special Reference to the Inner Ear (from the Ear Department of the Vienna Polyclinic).....
.....Thomas O. Edgar, Dixon, Ill.
Discussion opened by G. H. Mundt, Chicago

6. Circular Plastic Operation for Cicatricial Ectropion, a New Operation.....
.....E. F. Snydacker, Chicago
Discussion opened by N. Remmen, Chicago

7. The Diagnosis of Disorders Affecting the Perceptive Organs of Hearing.....
.....Otto J. Stein, Chicago
Discussion opened by J. Holinger, Chicago

8. Symposium on Penetrating Injuries of the Eye-Ball:
   (a) Diagnosis..Casey A. Wood, Chicago
   Discussion opened by William E. Gamble .....Chicago
   (b) X-ray, Value of in Localization of Foreign Bodies in Eye-ball: with Demonstration and Stereopticon Slides.....Hal P. Wells, Chicago
   Discussion opened by Charles C. Clement, Chicago
   (c) Treatment....Harry W. Woodruff, ... Joliet Ill.
   Discussion opened by M. H. Lebensohn ..... Chicago
   (d) Pathology of Infections Complicating; Exhibition of Specimens and Stereopticon Slides.....
   ..... Francis Lane, Chicago
   Discussion opened by Robert Blue, Chicago

9. The Tonsil in Its Relation to a Series of Infection Sequences.....
.....Frank Buckmaster, Effingham, Ill.
Discussion opened by Charles F. Burkhardt, Effingham, Ill.

10. Tydings' Submucous Operation; An Improved Technique...Oliver Tydings, Chicago
Discussion opened by J. Z. Bergeron, Chicago

11. Prognosis and Treatment of the Common Intra-Cranial Lesions Complicating Nose, Throat and Ear Infections.....
.....Norvall H. Pierce, Chicago
Discussion opened by Frank Allport, Chicago

12. Discussion of the Value of the Radiograph in the Diagnosis of Mastoid Disease.....
.....George E. Shambaugh, Chicago
Discussion opened by H. J. Pollock, Chicago

13. Diagnostic and Prognostic Value of Visual Fields; With Some Suggestions in Technique.....George F. Suker, Chicago
Discussion opened by Harry S. Gradle, Chicago

14. Comparative Value of Direct and Indirect Laryngoscopy and Bronchoscopy.....
.....Stanton Friedberg, Chicago
Discussion opened by C. W. Boot, Chicago

15. Horsehair Suture for the Relief of Tension in Glaucoma.....
.....J. Whitefield Smith, Bloomington, Ill.
Discussion opened by Cassius M. Craig, Champaign, Ill.

16. Common Focal Centres of Metastatic Infections in the Upper Respiratory Tract..
.....W. J. Rideout, Freeport, Ill.
Discussion opened by J. J. Grant, Freeport, Ill.

17. Post Nasal Cauterization in the Treatment of Chronic Constriction of the Eustachian Tubes, with Reports of Cases.....
.....Alexander S. Rochester, Chicago
Discussion opened by Frank Brawley, Chicago

18. Review of the Principal Operative Measures Advocated for the Removal of the Faucial Tonsil..A. B. Middleton, Pontiac, Ill.
Discussion opened by Edward F. Garraghan, Chicago

19. The Value of Diagnosis in the Treatment of Nasal Conditions....C. H. Long, Chicago
Discussion opened by Otto Freer, Chicago

20. The Detection of Malingerers of Deafness, with Demonstrations of Instrument.....
.....Carl B. Wagner, Chicago
Discussion opened by J. W. Dunn, Cairo, Ill.

21. The Examination of the Discharge in Purulent Otitis Media.....
.....Albert H. Andrews, Chicago
Discussion opened by John A. Cavanaugh, Chicago

SECRETARIES' CONFERENCE.

Elizabeth Ball, President.....Quincy
H. B. Henkel, Vice-President.....Springfield
Flint Bondurant, Secretary.....Cairo

Tuesday, May 16, 3 P. M., Parlor of Masonic Temple.

Co-operation of the County Medical Society with the State Board of Health for the Good of the Commonwealth.....
.....C. St. Clair Drake, Springfield
Printer's Ink in Organization.....
.....Thomas P. Foley, Chicago
A Valuable Aid in Our Work.....
.....E. W. Fiegenbaum, Edwardsville
Publicity.....A. M. Corwin, Chicago
How to Promote the Interest and Attendance in Our Country Societies.....
.....Andy Hall, Mt. Vernon

EXHIBITORS.

Horlick's Malted Milk.
William Meyer Co., X-ray.
D. Appleton Co., Books.
R. & E. Manufacturing Co.
Sharp & Smith, Surgical Instruments and Supplies.
Macalaster, Wiggin Co., X-ray Tubes.
Mellins Food Co.
Scheidel-Western X-ray Co.
Childs Drug Co.
W. D. Allison Co., Office Furniture.
W. C. Abbott Co., Drugs.
Standard Oil Co.
Phillips Chemical Co.
North Shore Health Resort.
Chas. A. Schmidt, Surgical Instruments.
Reed & Carnrick.
Lederle Antitoxin Co.
W. B. Saunders Co., Books
Central City Chemical Co.
Radium Chemical Co.
John McIntosh Co., X-ray.
Mudlavia.

COOK COUNTY

Chicago Medical Society

Regular Meeting, April 5, 1916.

PUBLIC WELFARE MEETING.

SYMPOSIUM ON CAPITAL PUNISHMENT.

Dr. J. C. Krafft, Chairman of Committee on Criminal Punishment, Chicago Medical Society.

Judge A. C. Barnes, formerly First Assistant State's Attorney, Cook County, Illinois.

Jno. L. Whitman, Superintendent of Bridewell.

Charles Peters, Deputy Sheriff, Cook County, Illinois.

Neils Juul, State Senator, Illinois.

Dr. Paul E. Bowers, Physician to Indiana State Prison, Michigan City, Indiana.

Regular Meeting, April 12, 1916.

1. "Menierre's Disease," Oliver Tydings. Discussion—Norval Pierce, W. G. Reeder.
2. "Typhoid Perforation," I. H. Eddy. Discussion—A. J. Ochsner, Coleman Buford, Frederick Tice.
3. "Diagnosis and Elimination of Chronic Focal Infections Associated with Teeth," Wm. H. G. Logan. Discussion—Hugh McKenna, Ed. L. Cornell.

Regular Meeting, April 19, 1916.

1. "The Criminal Boy. Some Observations Based on the Study of 112 Cases," Wm. O. Krohn. Discussion—John L. Whitman, Superintendent House of Correction; Hon. William N. Gemmill, Judge of Municipal Court of Chicago.
2. "The Relief of Chronic Obstructive Jaundice by Palliative Operations," John F. Erdmann, New York, N. Y. Discussion—A. J. Ochsner, Emil Ries.

Regular Meeting, April 26, 1916.

1. "Results of Further Studies in Haemoglobin," Charles Spencer Williamson.
2. "Recurrence of Symptoms After Operation for Gallstone Disease," John B. Deaver, Philadelphia, Pa. Discussion general.

CHICAGO OPHTHALMALOGICAL SOCIETY.

Meeting of Dec. 20, 1915, Continued.

Dr. William A. Fisher reported three cases on which he had operated for cataract by the intracapsular method, in order to let the members observe the condition of the eyes after the operation and note the visual results.

These patients were operated upon October 7 before the members of the Academy of Ophthalmology and Otolaryngology at their annual meeting. An iridectomy was made at the time of the operation in each case, without introducing the iris forceps into the anterior chamber—the Smith method. The three extractions were performed without accident or complication. There was no pain or postoperative inflammation in any of them, and the bandages were not disturbed for nine days. At the end of the ninth day the bandages were removed, the anterior chambers were reformed, the corneal wounds were closed, there was no iris prolapse in either of them, and the only treatment they received after the bandages were omitted was to keep the eyes clean and wear smoked glasses. They all counted fingers at about five feet when the bandages were removed. Their total time in the hospital after operation was 58 days, an average of 19 days.

The histories of these three cases are as follows:

Case 1. Mr. D., aged 74. Mature cataract right eye. Referred by his brother, Dr. Davey, Chicago. October 7, intracapsular operation; left hospital October 21 with vision 20/30 with pinhole. Referred him to Dr. Pendleton, Quincy, Ill., where he lives, to be refracted. A letter from Dr. Pendleton, November 25, 1915, says that Mr. D. has vision 20/20 with plus 10.00, and that the ophthalmometer does not show any astigmatism.

Case 2. Mrs. E., aged 70. Mature cataract. Referred by Dr. Mundt, Chicago. October 7, intracapsular cataract operation; patient left hospital October 29, 1915. December 20, 1915, her vision is 20/20 with plus 11.00 combined with plus 2.00 ax 30.

He was unable to present this patient to the Society on account of her age, and because the Society meets at night.

Case 3. This patient was presented for inspection. Miss W., aged 55. Mature cataract of right eye. Referred by Dr. Tydings, Chicago. October 7, intracapsular cataract operation; patient left hospital October 29. December 20, 1915, her vision with plus 10.00 is 20/20.

REPIGMENTATION OF AN INFLAMMATORILY DEPIGMENTED IRIS.

Dr. Harry S. Gradle reported the case of a patient, 45 years old, who had his first attack of iritis in the left eye in 1907. Five years later a second attack occurred. In October, 1915, patient suffered a third attack, during the course of which the left iris became depigmented, changing from its former brown to a perfect blue color. The inflammation subsided rapidly after exenteration of his hyperplastic ethmoids, leaving a blue iris with incomplete posterior annular synechiae. Within three weeks after the inflammation disappeared, brown pigment granules, identified under the corneal microscope as chromatophores, began to make their appearance at the periphery of the iris, eventually forming a solid brown ring around an otherwise blue iris. This ring is gradually advancing toward the pupillary edge, while the remaining iris stroma is studded with individual chromatophores.

PAUL GUILFORD, Secretary.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, held December 21, 1915.

The President, Dr. George W. Boot, in the Chair.

CASE OF ATROPHIC RHINITIS FOLLOWING REMOVAL OF TURBINATES.

DR. GEORGE W. BOOT showed a patient who had had extensive removal of the turbinates. He wished the Society to take some action looking to the preventing of physicians doing such multilating operations, with their resulting crusting.

DISCUSSION.

Dr. Joseph C. Beck asked the speaker if he claimed an atrophic rhinitis in consequence of that operation, to which Dr. Root replied in the affirmative—an operative atrophic rhinitis.

Dr. Joseph C. Beck is of the opinion that atrophic rhinitis does not result from the removal of the inferior turbinates.

Dr. A. H. Andrews thought it would be interesting to know the condition of the nose before the operation. If there was atrophic rhinitis soon after the removal of the inferior turbinates, he would be inclined to think that the process had existed before their removal. He does not believe in the indiscriminate removal of the inferior turbinates. Such practice should be severely condemned. With Dr. Beck, he questioned whether real atrophic rhinitis is ever caused by increased lumen of the nostril. It requires other etiological factors to produce the pathology.

Dr. J. Holinger did not think the diagnosis of atrophic rhinitis should be made unless syphilis and suppuration of some of the nasal cavities were excluded.

Dr. Boot said he did not mean to give the impression that he thought the pathological changes of atrophic rhinitis were present in the case. However, it was a case where there was a very marked condition in the nose, as the result of the operation, and the man has some of the clinical signs of atrophic rhinitis. He did not mean to say that it was an atrophic rhinitis from a pathological standpoint. In his opinion, the case certainly does not resemble a case of syphilitic ozena.

SYPHILITIC STRICTURE OF LARYNX.

Dr. Boot then exhibited a specimen of stricture of the larynx, due to syphilis, in which there was ulceration between the esophagus and trachea from long wearing of a tracheotomy tube and carcinoma of the accompanying thyroid gland. The arytenoid cartilages were destroyed by the ulceration causing the stricture. Anything the patient attempted to swallow would appear in the tracheotomy tube. A gastrotomy was done, in order to feed him, but he did not survive this operation.

CARCINOMA OF THE MANDIBLE; EXHIBITION OF SPECIMEN.

Dr. L. W. Dean, Iowa City, Iowa, exhibited a specimen of squamous-celled carcinoma of the mandible, without any ulceration of the mucous membrane of the tongue, floor of the mouth, or lips. An epithelioma of the lip had been removed about one year before. This condition was operated on by the method devised by Dr. Prentiss for the removal of half the mandible without interfering with any of the branches of the facial or producing any deformity about the mouth.

GIANT-CELLED SARCOMA OF JAW.

Dr. Dean also showed a specimen of a giant-celled sarcoma of the jaw, section of which showed how the growth did not involve the bone. The speaker's conception of tumors of the mandible is that the so-called giant-celled sarcoma is the only sarcoma where we are justified in not removing one-half of the mandible. The only other malignant tumor where we are justified in not removing one-half is an epithelioma involving the alveolar process.

DISCUSSION.

Dr. Boot asked Dr. Dean what he did to control hemorrhage in the first case reported, to which Dr. Dean replied that

there was practically no hemorrhage, and what hemorrhage there was could be controlled easily by the use of the hemostat.

Dr. Joseph C. Beck asked if there was any x-ray picture taken.

Dr. Dean replied that there was, and it was very suggestive of a cyst of the mandible.

Dr. Beck asked if the x-rays had been used therapeutically, to which Dr. Dean replied in the negative.

PATHOLOGICAL AFFECTIONS OF THE CAVERNOUS SINUS.

Dr. Henry G. Langworthy of Dubuque, Iowa, said that with a brief résumé of the anatomy of the subject which links together the study of such fields as the cranial nerves, pituitary body, sphenoidal cavity, orbits and cranial cavity itself, one is a little better prepared to consider the pathological affections which might affect such an important structure or region. The author mailed 284 letters to members of the American Surgical and Western Surgical Associations, to which he received 120 responses, but of this number only 44 were able to cite cases either directly or indirectly concerning the sinus. The classification of affection from the replies received was as follows: 1. Septic thrombosis; 2. gun-shot wounds; 3. involvement from fracture of the skull; 4. arteriovenous aneurysm; 5. injury during miscellaneous operations; 6. involvement by malignant growths, and 7. congenital affections. To this, from the literature gone over, must be added 8, marasmic or so-called aseptic thrombosis, and 9. intermittent exophthalmos, both of which are rare conditions.

1. In the answers to the question-letters, 29 cases of septic thrombosis were reported, with recovery in 3 cases, or 9.6 per cent. Of these cases of recovery, one from the ear recovered through energetic and thorough aural surgical treatment alone; one, a neck infection, recovered through local neck drainage, and one complicating an ethmoid operation with syphilis got well on expectant medical treatment. A direct operation was not attempted by any one of the 21 surgeons upon whose data this report is made.

2. Eight cases of gun-shot wounds were reported by letters, in which the sinus had been penetrated and otherwise badly injured. Six cases died and two recovered.

3. Fracture at the base of the skull, with moderate laceration or complete rupture of the sinus, was reported in 6 cases. Two cases recovered, one by tamponing the sinus, the other by expectant treatment, with, however, the final loss of the eye itself.

4. Fifteen cases of rupture of the carotid interior artery in the cavernous sinus, producing arteriovenous aneurysm with pulsating exophthalmos, for which ligation of the common carotid or internal carotid was performed, were reported. Improvement or full recovery ensued in 12; death in 3 cases.

5. Three cases in which the cavernous sinus was quite badly injured, two during a Gasserian ganglion operation, with good recovery, and one during an hypophysis operation, with death from intracranial hemorrhage.

6. Two cases of sarcoma with death were reported. In the literature, Knapp has reported a case of orbital sarcoma, followed by aseptic thrombosis of the cavernous sinus, with successful sinus operation, in which the patient lingered for over two months. Macewen also mentions a case of septic thrombosis and death from carcinomatous involvement.

7. One congenital growth (fibrocystic) was reported by Veer, in which the zygoma and malar bones were resected, in order to reach the area, and many vessels surrounding the cavernous ligated. The patient made a good recovery.

8. No cases of purely marasmic thrombosis were reported in the answers to the question-letters. A few instances are on record in literature, however, occurring during the course of debilitating or marasmic diseases.

9. Intermittent exophthalmos is a most interesting condition, new to most men, and its exact relationship to the cavernous sinus a little unsettled. No cases of this affection were mentioned in the question-letter. True intermittent exophthalmos is a rare condition, and must not be confused with pulsating exophthalmos, which latter is due to rupture of the internal carotid artery in the cavernous sinus.

DISCUSSION.

Dr. L. W. Dean, Iowa City, Iowa, said he had had three experiences in connection with disease of the cavernous sinuses. In the first case there was no exophthalmos. There was optic neuritis on the right side, but the patient had a very bad chronic suppuration of the sphenoid. Nothing else found. Within two days, however, he had a marked exophthalmos and died about four days after first coming under the speaker's observation. When first seen he was a walking case, with a septic temperature, chills and fever up to 105 degrees, then dropping to normal. Post mortem showed a typical phlebitis of the cavernous sinus, with suppuration of the mastoid. There was a necrotic area of the wall, a dehiscence of the inner wall of the sphenoid, and over this dehiscence there was a necrotic area of the cavernous sinus, with the septic clot. This case was of special interest to the speaker, because there was positively no trace of exophthalmos or edema of the nerve-head when the patient was first seen. The second case was one of arteriovenous aneurysm—also seen by Dr. de Schweinitz and the diagnosis confirmed by him. Two years ago the speaker ligated the common carotid in that patient, with a fine result. This was a traumatic case, with the pulsating exophthalmos accompanied by terrific pain. By "fine result" he meant that it was fine so far as the pain and slight diminution in size of the tumor were concerned. This patient now has a beautiful collateral circulation. Dr. Prentiss had gone over this patient, and come to the conclusion that the collateral circulation was mostly through the vertebrals. The third case was one that was reported before the Society, and occurred following tonsillectomy many years ago. The patient had a septic temperature coming on after exposure. When seen by Dr. Dean he had a temperature of 105 degrees. He had exophthalmos on the right side. Optic neuritis also present on left side. This man recovered without a doctor, came to Chicago afterwards and had the right eye enucleated. Dr. Dean had always thought the case was one of cavernous sinus phlebitis which recovered, but has had no definite way of knowing whether it was that or a sepsis of the orbit.

Dr. Joseph C. Beck thought the question of intermittent exophthalmos was interesting. Very recently he had had a case of intermittent exophthalmos in which he was preparing to do an exploratory operation on the orbit for a possible tumor within the orbit. There was, however, nothing definite to show this condition. The condition had no effect on the vision, but it was stated by the physician in charge that every time the patient became excited, nervous and tired she got an exophthalmos. While being put under the anesthetic

Dr. Beck looked at the patient's face and saw the disproportion of the two eyes. He examined the eye; felt above the inner canthus, and deep in the orbit he felt a mass—something like a rubber ball. He decided that there probably was a tumor, maybe an angioma, within the orbit, and on the nasal side. Nasal examination was always negative. X-ray examination did not give any hint as to the condition. Incision, as would probably be made for a Killian, only further inwards in the orbit. As soon as he came on to this mass, a slight opening was made, and a real gush of pus went all over the patient's face. Further exploration showed that the entire ethmoid had been destroyed. The orbital periosteum was intact, but thickened. It was a case of infected cyst of the ethmoid, both anterior and posterior. There was nothing unusual in the case, except the intermittent exophthalmos. He wished to call attention to the fact that one might have suspected a cavernous sinus condition in this case. Bacteriologic examination of the pus showed the streptococcus. The patient made an uneventful recovery.

In regard to the point made of injuring the cavernous sinus in a Gasserian ganglion operation, Dr. Beck had operated on one such case, and in severing the posterior root he could see very clearly the cavernous sinus, and how easily it might be injured in that operation.

Dr. Dean, in his discussion, mentioned ligation of the internal or common carotid artery. Only three days previously the speaker operated on a patient for cancer, making a resection of the lower jaw and part of the soft palate. He was forced to ligate the common carotid artery. The patient was in good condition after operation, but a hemiplegia followed, apparently just because of his heart giving way. While he recovered consciousness, he could not speak after the operation. Two months ago he did a similar operation on the lower jaw and part of the upper in a malignant case, doing a temporary compression on the common carotid artery, but the forceps were applied too firmly, and on relieving them he noticed a distinct compression of the artery, which he feared would necrose, and possibly fatal secondary hemorrhage ensue. He, therefore, ligated the common carotid, and that patient had the same symptoms—hemiplegia, with death following. On consulting the literature he found that 25 per cent. of cases of ligation of either the internal or common carotid die from just such symptoms, and he felt that he would keep away from such procedure in the future.

He wished to call attention to the reaching of the carvernous sinus very easily by a procedure first proposed by him for reaching the hypophysis, namely, through the antrum, being able to reach the opposite side.

Dr. Harry Kahn referred to a case, operated on some years ago by a general practitioner for the removal of tonsils and adenoids, but did not get the adenoids out completely. The speaker operated on the adenoids under a general anesthetic, and sent the patient to bed. About twelve hours later the right eye began to get larger and finally there was a proctosis. The patient had a septic temperature for two or three weeks, and then, by expectant treatment, the thing disappeared. Dr. Kahn did not know whether that was a cavernous sinus affair or not. There was no pus in the nose, and no evidence of anything except the proctosis, septic temperature, and meningeal symptoms evidenced by headache and vomiting. Treatment consisted of urotropin, hot applications, and so on, and the patient entirely recovered.

Dr. J. Holinger said that the most frequent disease of the cavernous sinus which we see or have to deal with is the continuation of a thrombophlebitis from the lateral sinus, caused by suppuration of the middle ear, especially the mastoid process. Unnecessary handling of the sinus at the operation, or ligature of the jugular vein, is undoubtedly a frequent cause for the progress of a thrombophlebitis backwards from the lateral sinus into the cavernous sinus, causing extensive thrombophlebitis of the sinuses at the base of the brain, and death.

Dr. George W. Boot had had one case of thrombosis of the cavernous sinus. It resulted from a furuncle on the nose. There was proptosis of the left eye and within twenty-four hours of the right eye also. The patient died of meningitis. He had seen a case of sarcoma of the orbit in the course of chronic suppurative otitis media, and also a case of tenonitis, in both of which it was necessary to consider the possibility of cavernous sinus thrombosis in the differential diagnosis.

Dr. Langworthy, in closing the discussion, said it was quite impossible in a single evening to cover the whole field of cavernous sinus conditions, and especially the relation to other parts of the head. The object of his paper was to systematize the cavernous and treat it as a separate organ, if possible, and classify the pathological effects, which task had not been easy. He realized that it was not a practical field for labor, but with the attention that the pituitary body is receiving, and will continue to receive, it seemed to him that that would probably throw more light on the cavernous sinus and the structures adjacent to the sphenoid bone. Stereoscopic x-ray plates ought to be of help in clearing up a great many possible affections of this sinus.

Dr. Dean's experience had been unique.

Dr. Beck's method of reaching the cavernous sinus is certainly as practical as any.

Regarding Dr. Kahn's case, it was evidently one in which a diagnosis would be very difficult, and he would want to have more complete information before commenting on it.

A REPORT OF TWO SEVERE CASES OF ULCERO-MEMBRANOUS ANGINA.

Dr. Ira Frank said the contrast presented by these two cases, which he was fortunate to be able to study simultaneously, was so marked, considering they both represented the same disease, with presumably identical etiological factors, that he thought them worthy of a report.

Case 1. Male, aged 49, was admitted with normal pulse and temperature. Only a meager history was obtainable, which showed that five weeks previously he had suffered with a peritonsillar abscess, which, when opened, had discharged a large quantity of pus. After evacuation the symptoms continued without remission, though there was no further formation of pus. The condition grew worse day by day. When he came under Dr. Frank's observation he was unable to swallow or to open his mouth beyond a one-half-inch separation of the incisors. He was weak and emaciated. Examination of the mouth revealed an area of deep necrosis on the right side of the soft palate, oval in outline, extending from and involving the tip of the upper pole of the tonsil, anteriorly to the hard palate, and mesially to the mid-line. The area involved was composed of a greenish-gray, foul-smelling slough, which was easily removed, with very little bleeding, and exposed an ulcer, 1 to 1¼ inches in diameter. The base was not raised, and only slightly injected. The edges were irregular and vertical, with a punched-out appearance. The floor was incompletely formed. A green semi-necrotic slough, with a perforation through the soft palate, large enough to permit a fair view of the superior portion of the naso-pharynx. Direct smears from the depths of the ulcer showed pus, fibrin, pneumococci, a fusiform bacillus and spirillæ, with the latter forms predominating. Wassermann reaction twice negative. A piece of tissue from the floor of the ulcer was examined microscopically, with the following report: "No malignancy. A suppurative process with marked necrosing tendency. Pus cells numerous, with a small round-celled infiltration. Infective cellulitis, with gangrene." The patient was given a frequent gargle of

peroxide, with daily deep injections of sodium cacodylate in gradually increasing doses. Opiates were given for symptomatic relief. The first signs of improvement were noticed on the third day, and on the eleventh day he was entirely free from pain. The course of the entire process was ten weeks, six of which were spent in the hospital. He was discharged, with a firm scar distorting the soft palate, through the center of which ran a narrow fistula, leading up into the posterior nares.

Case 2. Female, aged 22, entered hospital with a temperature of 102 degrees. For one week had complained of severe sore throat, with almost total dysphagia, and the usual constitutional symptoms accompanying a severe throat infection. The right tonsil was found covered with a greenish-gray membrane extending beyond the tonsil anteriorly and posteriorly, and hanging in small islands on the pharyngeal wall. The membrane was adherent and tough, and rested on an angry red base. It was removed with difficulty. The uvula, soft palate and pharynx were edematous. Laryngeal examination revealed marked redness of larynx and epiglottis, and no edema. Cultures were negative, and smears showed large numbers of both fusiform bacilli and spirillæ. Urinalysis negative; Schick reaction negative; Leucocytes, 24,000, with ordinary differential count. Same treatment as Case 1, with no appreciable improvement. She became hoarse, and was unable to talk above a whisper. Deglutition caused severe attacks of coughing, and she complained of intense substernal pain after swallowing minute quantities of water. Laryngeal examination impossible. Urine at all times scanty, and on the third day showed very positive albumin, with hyaline and granular casts. On the fourth day she vomited a large elongated mass of membrane, which was evidently a portion of a cast of the esophagus. On the fifth day, after a severe spell of dyspnea and cyanosis, she coughed up a ribbon of membrane, three inches long. Acute nephritic symptoms supervened and death occurred nine days after admission.

These cases, both clinically very malignant, present markedly differing types. The first was ulcerative and necrotic—a slowly extending destructive process, with symptoms relating only to the affected parts. The lesion responded readily to treatment. In the second case the process was primarily membranous, with only a slight tendency to superficial ulceration. The membrane spread rapidly, and there were evidences of its migration into the trachea and esophagus. Systematically, the case showed pronounced toxic features, with fever, nephritis and myocarditis. It may be suggested that the slow ulcerative type is a chronic infection, whereas the membranous type is an acute or fulminating type of the same disease—the ulcerating form being due to attenuated organisms or an immunizing protective effort of the body.

DISCUSSION.

Dr. Robert Sonnenschein said that two important points in Dr. Frank's paper were the facts that there is a marked clinical difference in cases of so-called Vincent's angina, and that some of these cases result fatally. A few months ago Dr. Sonnenschein saw two patients at the Cook County Hospital suffering from ulcero-membranous angina, and both of them died in consequence thereof.

As a matter of justice, the disease in question ought to be called Plaut's angina, or Plaut-Vincent angina, since it was Plaut who discovered the organisms and first described the lesion of the disease, whereas Vincent a short time later wrote a great deal on the subject, and thus had his name very closely associated with the condition.

ROCK ISLAND COUNTY

The regular meeting of the Rock Island County Medical Society was held April 11 at the Manufacturer's hotel, Moline, Ill. A dinner preceded the business session.

The annual report of the secretary showed the attendance at one or more meetings of about 75 per cent. of the membership and an average attendance of thirty at each meeting.

The treasurer reported an expenditure of $218.62 during the fiscal year, with a balance on hand of $169.16.

The annual election of officers was then held with the following result: President, Geo. A. Wiggins, Milan; first vice-president, H. A. Beam, Moline; second vice-president, W. D. Chapman, Silvis; secretary, A. E. Williams, Rock Island; treasurer, A. T. Leipold, Moline; delegate to state convention, J. M. O. Bruner, Port Byron; alternate, F. H. First, Rock Island.

Dr. H. L. Wilson, Taylor Ridge, and Dr. M. H. Smith, Rock Island, were unanimously elected to membership.

Upon motion of Dr. W. D. Chapman the following resolution was passed:

WHEREAS, The *Journal of the American Medical Association,* in the fulfillment of its legitimate office, a laudable portion of which is the education of the profession and public concerning the content and therapeutic value of medicines and nostrums appearing on the market, has become involved in an action for damage against the *Journal* and its editor, Dr. Geo. H. Simmons; therefore be it

Resolved, That the Rock Island County Medical Society, Illinois, extend to Dr. Simmons and to the *Journal* a vote of confidence and of appreciation for work well done; together with an expression of the hope that the "Propaganda for Reform" department will continue as in the past to be a vigorous and worthy department of *Journal* activity; and be it further

Resolved, That a copy of this expression be spread upon the minutes of the society and copies be delivered one each to our friend and colleague, Dr. Geo. H. Simmons, to the ILLINOIS MEDICAL JOURNAL, and to the *Journal of the American Medical Association.*

A rising vote of thanks was tendered by the society to the retiring officers for their efficient service.

After the routine business was transacted the following program was rendered:

Dr. George A. Wiggins reads a paper on "Puerperal Eclampsia." The writer, who has had an unusual experience in treating these cases, developed his

subject in a most interesting and practical manner. His paper evoked favorable discussion from the following members: Beal, Snively, Littig, Conroy, Chapman, Peterson, Hauberg, Myers, Dart and Freek.

Dr. C. E. Robb presented a paper on "Otitis Media." In his paper Dr. Robb emphasized many points of special value to the general practioner in treating such cases. Drs. Asay and Rochow lead in a discussion of this paper.

Thirty-seven members and several visitors attended this meeting. A. E. WILLIAMS, Secretary.

ST. CLAIR COUNTY.

The regular monthly meeting of the St. Clair County Medical Society was held at Carnegie Library, Belleville, April 6. President B. H. Portuondo presided and fourten members were present.

Dr. Francis Reder of St. Louis, Mo., read a paper on "Remarks on Intestinal Anostomosis." A most scientific and exhaustive paper, covering the subject from the earliest history of surgery.

Drs. L. T. Tangue, Freeburg; I. C. Henry and P. J. Carroll, East St. Louis, were admitted to membership upon recommendation of the Board of Censors.

Society adjourned to meet again at East St. Louis, May 4, 1916. A. E. HANSING, Secretary.

WINNEBAGO COUNTY

The Winnebago County Medical Society met at Unity Hall, Rockford, April 11, 1916, with Dr. C. A. Walker in the chair. Members present, 32; visitors, 3.

Dr. E. H. Ochsner of Chicago spoke on the subject, "The Bis-Chemistry of Topical Application." He devoted his paper to the accurate use of boric acid in surgical dressings, a saturated solution being essential. Discussion followed. It was moved and seconded that Dr. Ochsner be considered an honorary member of the Winnebago County Society.

The society authorized the chair to appoint a committee of three to draw up resolutions, stating the sentiment of the Winnebago County Medical Society for a better and more sanitary down-town waiting room. Also stating that this matter be considered thoroughly before the street car company be granted an extension of its present franchise, and that these resolutions be presented to the City Council at one of its earliest meetings. Drs. Tuite, Starkey and Park were appointed.

Dr. C. M. RANSEEN, Secy.-Treas.

Personals

Dr. Joseph Sondel, of Bradley, has removed to Kankakee.

Dr. W. W. Sherwood has removed from Pana to Wynne, Ark.

Dr. F. E. Tulley of Granite City, is about to remove to Los Angeles.

Dr. Adam Szwajkart has resigned as a member of the state board of health.

Dr. C. A. Stone has returned to Elgin after nineteen years practice in Belvidere.

Dr. J. D. Byrne, of DuQuoin, is taking a postgraduate course in New York City.

Dr. Heber Robarts has been elected president of the Safety First Society of Belleville.

Dr. A. S. Szwajkart, of Chicago, has resigned as member of the State Board of Health.

Dr. Frank Hanson, of Worden, has removed to Braceville, where he formerly was in practice.

Dr. Arthur R. Elliott delivered an address before the Indianapolis Medical Society, March 21.

Dr. and Mrs. Lewis S. Eastlake, Chicago, have returned after passing the winter in California and Hawaii.

Dr. Cassius C. Rogers has removed from 3240 Washington boulevard to 507 Roscoe street, Chicago.

Dr. J. R. Sutter, Jr., of Edwardsville, was robbed of a stock of narcotics, presumably by a dope fiend.

Dr. Edward Sherman, of Aurora, was appointed first lieutenant in the medical reserve corps of the Army.

Dr. Arthur R. Elliott delivered an address before the Joliet Medical Society, March 14, on "High Blood Pressure."

Dr. Ralph H. Kuhns sailed for Europe on the Oscar II, April 6, and will be assigned to Red Cross work in Germany.

Dr. Justin L. Mitchell, Chicago, who was operated on at the German Deaconess Hospital, has returned home convalescent.

Dr. E. L. Emerson, who has practiced for many years in Matherville, has announced his intention of retiring from practice.

Dr. Nelson M. Percy, Chicago, addressed the Seventh District Medical Society at its meeting at Sioux Falls, S. D., April 4.

Dr. Alfred A. Strauss, Chicago, delivered an illustrated lecture before the Dubuque (Iowa) Medical Association March 28.

Dr. A. H. Burr announces that he will mail reprints of his article on "Longevity in Relation to Sex," on receipt of ten cents in stamps.

Dr. George Guca, Chicago, who was a passenger on the steamer Brindisi, which was torpedoed off Albania in January, reached Boston, April 7.

Dr. Charles A. Parker addressed the Rock County (Wis.) Medical Society, March 28, on "Some Things Worth Knowing About Joints."

Dr. Mortimer Frank, Chicago, addressed the Harvard Medical History Club April 4, and the Johns Hopkins Medical Historical Club April 6.

Dr. Norman MacLeod Harris of the University of Chicago left, April 5, for Toronto, where he will join the Canadian Army Medical Corps.

Dr. William D. Nelson, Jr., Canton, who was seriously injured March 17, in an automobile accident in Oklahoma, has recovered and returned home.

Jiroch, Bradford, Katz and Lynott, Chicago quacks, have been indicted by the federal grand jury for using the mails to defraud. They forgot to "Lynott."

Dr. F. R. Goddard, of Harvard, has sold his practice to Dr. W. A. McClimans, and will remove to California after taking postgraduate work in Chicago.

It is said that Dr. John J. McShane made such a fine record as commissioner of health at Kenosha, that he has been called to Akron, Ohio, as commissioner.

Dr. George P. Gill, Rockford, delivered an address before the Winnebago County Medical Association, March 17, in which he told of his experience in France.

Dr. Frank E. Simpson, Chicago, delivered an address before the Racine County Medical Society March 30, on "Radium and Its Uses in the Treatment of Cancer and Other Skin Diseases."

Dr. James Patterson, of Chicago, is crusading against the noise nuisance in the vicinity of hospitals. One of the worst was a chime of bells in a church. But the church was burned!

Dr. Duro Guca, chief surgeon of the Bohemian-American Relief Expedition to Serbia and Montenegro, who was recently taken off a liner bound for New York on suspicion of being an Austrian spy, has been freed.

Dr. Giovanni B. Bruno, who has been serving in the Italian army for the past eight months, has been promoted to captaincy in the medical corps and placed in charge of a field hospital on the Isonzo facing Goritz.

Dr. C. St. Clair Drake, secretary of the State Board of Health, gave an address on "Why a State Board of Health," illustrated with moving pictures, before the Madison County Medical Society, at Alton, April 7.

Dr. Paul Gronnerud, Chicago, was guest of honor at a dinner given by the Muskegon-Oceana Medical Society at Hackley Hospital, Muskegon, Mich., March 31. After the dinner Dr. Gronnerud delivered an illustrated address.

At a joint meeting of the Scott and Clinton counties (Iowa) medical societies and the Whiteside County (Ill.) Medical Society held at Clinton, March 24, Dr. Joseph B. Miller, Chicago, delivered the principal address.

The resignation of Dr. P. M. Kelly as superintendent of the Kankakee state hospital was accepted April 24 at a meeting of the state board of administration. Dr. Kelly resigns because of poor health. He is now at Colorado Springs, Colo.

In consequence of the resignation of Dr. Kelly the board made the following changes in the executive officers of the state insane asylums:

Dr. R. A. Goodner, superintendent of the Anna State Hospital, transferred to Kankakee Hospital as superintendent.

Dr. G. W. Morrow, assistant superintendent at Anna, transferred to Kankakee as assistant superintendent.

Dr. S. W. McKilvey, assistant physician at Anna, transferred to Kankakee as assistant physician.

Dr. Eugene Cohn, assistant superintendent at Kankakee, transferred to Chicago State Hospital as assistant superintendent.

Dr. H. J. Smith, assistant superintendent at Chicago, transferred to Anna as assistant superintendent.

Dr. J. A. Campbell, superintendent of Watertown State Hospital, transferred to Anna as superintendent.

Dr. Charles F. Reed, assistant superintendent of Peoria State Hospital, transferred to Watertown to be superintendent.

Dr. Isaac Freemmel, assistant superintendent of Chester State Hospital, transferred to Lincoln

State School and colony as assistant superintendent.

Dr. C. V. Caldwell, assistant superintendent at Lincoln, transferred to Peoria as assistant superintendent.

The vacancy for assistant superintendent at Chester will be filled by certification from the State Civil Service Commission.

Dr. Ernest E. Irons, Chicago, was the speaker of the evening at the meeting of the Freeport Academy of Medicine and Surgery, March 21. His subject was "Practical Therapeutic Application Based Upon Recent Knowledge of Infectious Diseases."

News Notes

—The Deering Memorial Chapel, located in the Wesley Memorial Hospital, was dedicated, April 9.

—It is said that two interns have volunteered to be inoculated with the germs that Dr. Mallory claims as the cause of scarlet fever.

—The Sangamon County Medical Society has organized a milk commission, which has established regulations for the certification of milk.

—The Elgin Physicians Club were guests of Dr. Gahagan at the Elgin State Hospital, April 10, the regular program being followed by a luncheon.

—The State Hospital Medical Association of the State Hospitals of Illinois will hold a meeting at Anna State Hospital, May 25-26. All physicians are cordially invited.

—Cities and towns all over the state organized "clean up and paint up" crusades this spring. It's getting so that the lazy man who neglects his yard and alley will almost be made uncomfortable.

—Examinations for entrance into the Medical Corps of the Navy will be held on or about June 16. Full particulars can be obtained by addressing the Surgeon General of the Navy, Washington, D. C.

—The twelfth annual meeting of the National Association for the Study and Prevention of Tuberculosis will be held in Washington, D. C., May 11 and 12. Conference headquarters and all sessions, New Willard hotel.

—Following the discovery, March 31, that Miguel Vasquez, Moline, was suffering from leprosy, Dr. George A. Zeller of the state board of administration announced that the state would establish a leper colony at Watertown.

—In a formal report to the Public Buildings Committee of Congress the expenditure of $50,000 for improvements for the Marine Hospitals in Chicago is proposed. The improvements consist of repairs to the building and the rebuilding of the seawall and breakwater.

—The forty-third annual meeting of the National Conference of Charities and Correction will be held in Indianapolis, May 10-17. This organization brings together about 2,500 men and women engaged in practical social work, voluntary and public, in the United States and Canada.

—At the meeting of the Institute of Medicine of Chicago, April 29, Prof. William L. Tower of the University of Chicago delivered an address on the "Fundamental Biologic Factors in the Evolution of Human Populations." Dr. William Healy of the Psychopathic Institute spoke on "The Eugenists and Medicopsychologic Problems."

—An elaborate annual report of tuberculosis work done under the auspices of the Aurora Antituberculosis Society has been made by Louis Lowe Baker, R. N. The nurses of the city hospital received training in social service work; numerous articles advocating the establishment of a tuberculosis sanitarium were published and a petition of several thousand names was presented to the supervisors endorsing the project.

—The contract between the State Board of Administration and the Otho Sprague Memorial Institute for the establishment of a laboratory at the Chicago State Hospital for research work in dementia præcox has been signed, and the opening of the laboratory now awaits only the selection of a director. The medical director of the Sprague Memorial Laboratory is Dr. H. Gideon Wells of the University of Chicago.

—The suit of John A. Patton of Chattanooga, against the American Medical Association for damages was terminated dramatically by the death of the complainant following an emergency

operation April 26. The Association had built up a strong defense through the testimony of chemists and eminent physicians that the Wine of Cardui was practically inert except for the alcohol it contained, Numerous witnesses from the South testified that it was just "drinkin' likker."

Marriages

CHARLES L. O'BRIEN, M. D., to Miss Eleanor Mahoney, both of Chicago, February 13.

GEORGE W. WEBSTER, M. D., to Mabel Vibert MacNab, both of Chicago, April 15.

THOMAS R. LASWELL, M. D., New Hope, Ill., to Mrs. Mattie Hambleman of Murphysboro, Ill., March 11.

Obituary

JOHN RICE FLETCHER, M. D.

Dr. Fletcher of Winnetka and Chicago, died of pneumonia, April 28, after an acute illness of a week or so following an attack of rheumatism.

His confreres in ear, nose and throat work feel his death keenly, as he held a high place in their esteem, personally and professionally. He was known as a man of good judgment, operative skill and ability to tell what he knew. All recognized his scientific enthusiasm as dominant. He had served as president of the Chicago Otological and Laryngological Society; was one of the most active members and a frequent contributor to medical literature.

Dr. Fletcher had, since graduating from medical school in 1891, engaged in extensive general practice among the suburbs of the North Shore. Some seven or eight years ago he retired from that practice and took his family to Vienna, where for two years he thoroughly prepared himself for the special work to which he has since devoted himself so successfully in Chicago. He was professor in the Post-Graduate Medical School, where he was much respected by his medical associates and a large clinical following.

Personally he was a man of decided convictions and strong character, markedly independent of what he considered needless conventions. He was very democratic in his sympathies. Though retiring in disposition, he was very affable to those whom he liked, full of kindly humor. His close friends will further testify to the value of his ideas, which bespoke the student of books and men, keen observer and a man who knew how to think.

His death, at the age of fifty-two, is only another evidence of the increasing loss we are suffering among men in middle life, when the fruitage of wisdom should be richest, when sympathy is ripe, judgment mature and intellectual life most productive.

ARTHUR M. CORWIN, A. M., M. D.

JOHN F. CAREY, M. D.

Dr. Carey was graduated from the St. Louis College of Physicians and Surgeons in 1895 and practiced in Braceville twenty years. Was one of the oldest and best known physicians in Grundy County. Was a Fellow of the American Medical Association; physician for Grundy County eighteen years; also physician for Braceville, Godley and Central City many years. Died at his home, March 19, of myocarditis; aged 55 years. As a sign of respect for his high standing in the community the schools were dismissed to allow the teachers to attend his funeral by train at Odell.

Deaths

WILLIAM FERGUSON MOFFETT, Chicago; an eclectic practitioner since 1857; aged 88; died at his home, March 14, from endocarditis.

ERNEST G. H. MIESSLER, Chicago (license, Illinois, years of practice, 1878); a resident of Chicago since 1871; died at his home, March 2, aged 90.

LEIGHTON I. SHERWOOD, Wenona, Ill. (license, Illinois); aged 86; a practioner since 1859; died at his home, February 16, from bronchopneumonia.

ALVIS MARCELLUS ZAHORIK, M. D., Chicago; Dearborn Medical College, 1906; aged 36; died at his home in Chicago, March 24, from cerebral hemorrhage.

EMIL SINCERE, M. D., Chicago; University of Louisville, Ky., 1874; aged 80; formerly a member of the Illinois State Medical Society; died at his home in Chicago, March 30.

AMOS SAWYER, M. D., Hillsboro, Ill.; Washington University, St. Louis, 1859; aged 78; once president of the Central Illinois Medical Society; died at his home near Hillsboro, March 18.

MARION HOMER DUCKWALL, M. D., Moweaqua, Ill.; Illinois Medical College, Chicago, 1905; aged 38; a Fellow of the American Medical Association; died at St. Mary's Hospital, Decatur, Ill., March 25, from typhoid fever.

JOHN R. SMITH, M. D., Golconda, Ill.; Jefferson Medical College, 1864; aged 71; while passing through Pratt, Kan., with his invalid daughter, March 19, on the Rock Island Railroad, was stricken with cerebral hemorrhage and died.

MARION BERTHA MCDONALD, M. D., Chicago; American College of Medicine and Surgery, 1903; aged 39; formerly a Fellow of the American Association; a member of the Illinois State Medical Society; assistant in the Eye and Ear Department of her alma mater; died at her home, April 1, from carcinoma.

JOHN J. BRINCKERHOFF, M. D., Minooka, Ill.; College of Physicians and Surgeons, Chicago, 1897; aged 46; for many years a practitioner and druggist of Minooka and secretary of the Desplaines Valley Poultry Association; died in the Silver Cross Hospital, Joliet, April 4, from embolism, a few hours after tonsillectomy.

CARLOS E. HUSK, M. D., Shabbona, Ill.; College of Physicians and Surgeons, Chicago, 1898; aged 42; formerly a practitioner of Santa Barbara, Chihuahua, Mexico; a member of the expedition sent by Mount Sinai Hospital, New York City, to investigate typhus fever; was seized with the disease at Nuevo Laredo, Mexico, and died, March 20, in Laredo, Texas.

GEORGE M. PEAIRS, M. D., Joliet, Ill.; Rush Medical College, 1891; aged 49; a Fellow of the American Medical Association; one of the most prominent surgeons of northern Illinois; surgeon to St. Joseph's and Silver Cross hospitals, Joliet; local surgeon of the Elgin, Joliet & Eastern and Chicago, Lake Shore & Eastern railways and Illinois Steel Company; died at his home in Joliet, April 13.

WILLIAM JAYNE, M. D., Springfield, Ill.; Missouri Medical College, St. Louis, 1840; aged 99; formerly territorial governor of the Dakotas; later mayor of Springfield, Ill., state senator from Sangamon county, and prominently identified with the banking interests of Springfield; at one time a member of the State Board of Charities; died at his home, March 20, from the effects of injuries received in a fall on an icy sidewalk in Springfield, in January last.

NEW AND NONOFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1916, and in addition to those previously reported, the following articles have ben accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Radium Bromide, W. L. Cummings Chemical Company.—It complies with the standards of N. N. R. and is sold on the basis of its radium content. W. L. Cummings Chemical Company, Lansdowne, Pa.

Radium Carbonate, W. L. Cummings Chemical Company.—It complies with the standards of N. N. R. and is sold on the basis of its radium content. W. L. Cummings Chemical Company, Lansdowne, Pa.

Radium Chloride, W. L. Cummings Chemical Company.—It complies with the standards of N. N. R. and is sold on the basis of its radium content. W. L. Cummings Chemical Company, Lansdowne, Pa.

Radium Sulphate, W. L. Cummings Chemical Company.—It complies with the standards of N. N. R. and is sold on the basis of its radium content. W. L. Cummings Chemical Company, Lansdowne, Pa.

Borcherdt's Dri-Malt Soup Extract.—A powder obtained by adding potassium carbonate 1.1 Gm. to each 100 Gm. of Borcherdt's Malt Extract and evaporating. Borcherdt Malt Extract Company, Chicago.

Borcherdt's Dri-Malt Soup Extract with Wheat Flour.—A powder obtained by evaporating 100 Gm. Borcherdt's Malt Soup Extract and 50 Gm. wheat flour made into a paste. Borcherdt's Malt Extract Co., Chicago.

Borcherdt's Finished Malt Soup Powder.—A powder obtained by evaporating 100 Gm. Borcherdt's Malt Soup Extract, 50 Gm. wheat flour, made into a paste and 330 Gm. milk. Borcherdt's Malt Extract Co., Chicago (Jour. A. M. A., March 11, 1916, p. 815).

Saubermann Radium Emanation Activator.—An apparatus for the production of radioactive drinking water by the action of radium sulphate. Each apparatus is designed to furnish about 500 Cc. radioactive water per day. The exact daily capacity and efficiency are guaranteed and are stated for each apparatus. The following strength generators are offered:

Saubermann Radium Emanation Activator, 5,000 Mache Units.—An apparatus which imparts about 1.8 microcurie (5,000 Mache Units) to about 500 Cc. water daily.

Saubermann Radium Emanation Activator, 10,000 Mache Units.—An apparatus which imparts about 3.6 microcurie (10,000 Mache Units) to about 500 Cc. water daily.

Saubermann Radium Emanation Activator, 20,000 Mache Units.—An apparatus which imparts about 7.2 microcurie (50,000 Mache Units) to about 500 Cc. water daily.

Saubermann Radium Emanation Activator, 50,000 Mache Units.—An apparatus which imparts about 18 microcurie (50,000 Mache Units) to about 500 Cc. water daily. Radium Limited, U. S. A., New York (Jour. A. M. A., March 18, 1916, p. 893).

Styracol Tablets, 5 grains.—Each tablet contains 5 grains styracol. Merck & Co., New York.

Tannalbin Tablets, 5 grains.—Each tablet contains 5 grains tannalbin. Merck & Co., New York.

Stanolind Liquid Paraffin.—A non-proprietary brand of liquid petrolatum, complying with the standards of the U. S. P., 8th ed., and made from American petroleum. Standard Oil Company of Indiana, Chicago (*Jour. A. M. A.*, April, 1916, p. 1027).

Book Notices

AUTOPLASTIC BONE SURGERY, by Charles Davison, M. D., Professor of Surgery and Clinical Surgery, University of Illinois, College of Medicine; Fellow of the American College of Surgeons; Surgeon to Cook County Hospital and University Hospital; and Franklin D. Smith, M. D., Clinical Pathologist to University Hospital. With 174 illustrations. Lea & Febiger. Philadelphia and New York. 1916.

Autoplastic bone surgery has within the last few years become so much used and so popular with operators that text books on the subject are warranted. This book of Davison and Smith, while not as complete as one might wish, will be of distinct value, and will stimulate other operators to work of this character. The one hundred and seventy-four illustrations, chiefly röntgenograms, are of especial value, and show, as no text could show, the application of the transplant and the final results. More of this work will be done in the future. Autoplasts will supplant the use of the Lane plate to a considerable extent, and this text together with the drawings and röntgenograms will be of distinct value to the operators beginning this work.

AMERICAN PUBLIC HEALTH PROTECTION, by Henry Bixby Hemenway, A. M., M. D., Author of The Legal Principles of Public Health Administration. The Bobbs-Merrill Company, Indianapolis. Cloth, $1.25 net.

The author of this treatise is one of the most thorough students of the subject in this country. Frequent references to the law underlying public health activities remind one that he speaks on the subject with authority and the prestige due the writer of the leading text book on public health law.

The present volume will be read with avidity and profit by the ever-increasing number of people who are interested and desire more light on the subject of public health. All through the chapters the modern ideas of the proper field of public health efforts are contrasted with the mediæval ideas that still persist so widely. He is insistent that the new profession must avail itself of the very latest developments of science or be unworthy of the heritage of the great souls that have blazed the way to the conquest of pestilence and epidemic.

The historical review covers the early development of public health in the United States and the history of the present national health activities of the government.

The contrast of medical and sanitary education is the crux of the whole treatise, for therein the author demonstrates that medical education practically ignores the demands for public health officials. His demand for whole time health officers is clinched as follows:

"No doctor engaged in private practice has probably ever served honestly and faithfully as a health official and not thereby injured, or ruined, his private practice. . . . To ask a medical practitioner to serve as a public officer of health and not pay him amply therefore is to put a premium upon dishonesty."

One of the mooted points in public health administration is whether medical school inspection should be under health departments or boards of education. The author favors the school authorities and offers plausible arguments.

As to the organization of health departments, the author is unqualifiedly for the single executive rather than the board of health with its divided authority, but insists that the official should be a real sanitarian. Some of the political appointees evidently make his gorge rise in disgust.

The author offers some ingenious suggestions for the education of those charged with the responsibilities of public health in various capacities. Physicians will doubtless for a long time to come be selected in one way or another to look after the public health. But even if they confine their activities to private practice they will find Dr. Hemenway's little volume delightful reading, which will also pave the way for better cooperation between the profession and the health officer.

PULMONARY TUBERCULOSIS. By Maurice Fishberg, M. D., Clinical Professor of Tuberculosis, University and Bellevue Hospital Medical College; Attending Physician, Montefiore Home and Hospital for Chronic Diseases, New York. Octavo, 639 pages, with 91 engravings and 18 plates. Cloth, $5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

A timely volume by a physician of wide experience, as a specialist in lung diseases. It is a work that will prove most valuable to the general practitioner, who is called upon to treat the majority of cases of pulmonary tuberculosis at home. The work is complete in every detail, in diagnosis, treatment and in the prevention of the disease. Particular stress is laid upon the home treatment and care of these unfortunates, and if properly applied will do much towards their cure, as far as a cure is possible. The treatment by artificial pneumothorax has been given in detail. Facts, established by leaders in this branch of medicine, have been presented, with the author's own results, making it a thorough and comprehensive work. It should meet with a deserved success.

THE PRINCIPLES AND PRACTICE OF PERIMETRY. By Luther C. Peter, A. M., M. D., F. A. C. S. Associate Professor of Ophthalmology, Philadelphia Polyclinic and College for Graduates in Medicine; Ophthalmologist to the Rush Hospital for Consumption and Allied Diseases. 232 pages, with 119 illustrations. Cloth, $2.50 net. Lea & Febiger, Publishers, Philadelphia and New York.

This is probably the only work devoted exclusively to the subject perimetry in the English language. It covers the ground thoroughly, and the relation of perimetry to other diseases, as those of the brain and nervous system, and of the nose is presented. It is a subject that heretofore has been neglected in most text-books, the fundamentals and its principles seen clearly presented. It should prove a valuable aid in the diagnosis of diseases in which perimetry is indicated.